SHARED LANDSCAPES: Building Connections in the Suburbs

by
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Submitted to the Department of Architecture in partial fulfillment of the requirements for the degree of Master of Architecture at the Massachusetts Institute of Technology, May 1994

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Abstract

American suburbs are repeatedly assailed for being placeless, with restrictive zoning that isolates the public realm from the private. Critics accuse the suburbs of over-emphasizing castle-like detached single family homes at the expense of civic or community spaces. Recent interest in mixed-use residential communities indicates a desire for a greater reintegration of the individual household with the collective life of a larger community. A crucial place to investigate this urbanistic transformation of suburban development is at the basic 'building block' of community: the micro-neighborhood of dwellings within close proximity.

The thesis attempts to answer these questions: at this finer scale, how can one develop a community-oriented civic presence that fosters neighborly interactions in a residential setting? How can this presence connect micro-neighborhoods to the surrounding community? And how does the looser density of the suburbs affect a transplanted, urban-derived sense of shared space?

Several models of suburban settlement typology were examined: the dense townscape of Cambridgeport, MA; the "garden city" of Radburn, NJ; a post war development, Five Fields in Lexington, MA; and a contemporary "traditional neighborhood development," Kentlands in Gaithersburg, MD. Each was analyzed for development of shared space: the territorial claims that develop between private dwellings and fully public space.

To explore these questions at the micro-neighborhood scale, a clustered development, with common land and swimming pool, was designed on a three acre parcel; site density was comparable to that surrounding. To address different scales of shared claim/civic presence, the site abuts both a settled suburban neighborhood of Lexington, MA and the newly opened Minuteman Bikeway, an abandoned railbed that was converted to a paved bikeway. The project also includes exploration of community facility programming that supports the spatial organization of collective claims.

Thesis Supervisor: Rosemary Grimshaw
Title: Assistant Professor of Architecture

For
Molly and Lora and, especially, Gordon

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and computer help at the right moment

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my thesis buddies

and always, to my loving
(over)extended family.

Table of Contents

Fig. 1 The Garden Wall,
by John Singer Sargent

Introduction

This thesis is about American suburban community form and its relation to social habits. Through analysis of past and present residential developments and design of a new prototype the thesis attempts to show that, within the tradition of single-family housing, it is possible to develop a sense of place and belonging that may be the basis for some community linking, without becoming an exclusive and homogeneous place.

The recent trends toward gated "communities" and communities based on a nostalgic image of small-town America are new appearances in residential design. They reflect the increasing recognition that typical residential development does not support the activities of neighboring that create a sense of community. Even if the gates and picket fences are symbolic markers, the trends point out an enclave mentality that has come to represent a sense of community in the minds of far too many designers, developers, and homebuyers. In this conception, the focus is turned inward and substitutes the computer and television virtual community for physical belonging at a larger scale. The physical experience is one that privatizes even the community experience, leaving aside physical connections in favor of a web of information-based links. How then, to break apart the notion that physical enclosure of similar units, the appearance of homogeneity in houses or individuals, will make a community?

This investigation of suburban transformation started with reflection on the ways that neighboring supports family life and community life. While the virtual community of computer and telecommunications networks frees people from some proximity requirements, the virtual community is no substitute for the physical proximity of a real community.

Caretaking - of children, elders, disabled, ill - will always require support in a real and continuous way. In our individualistic suburbs, therefore, it is crucial to create and maintain the informal culture of neighboring: to build the space and activities for the myriad of small connections that make asking for help or giving it an easier act.

Fig. 2 The interface

Furthermore, the public life of the larger community depends on the linkages made at the smaller scale. The day-to-day contacts of neighborly interaction are the bridge to a larger sense of community. In traditional urban areas and towns, this larger sense of community was given form as civic presence: the shared buildings and spaces that represented the community. This community-oriented public realm conveyed an attitude about the community both to the larger region and to the community itself.

The civic presence occurred at a range of scales, from the state house to the municipal field, to the bus stop and bulletin board. New housing developments that have been built to satisfy private needs have rarely contributed to the building of civic quality for the larger community, thus placing pressure on the existing civic spaces and institutions. And as these developments do not typically contribute shared space at the neighborhood scale, it is essential to investigate the possibilities for development of this civic presence at the very small scale: the micro-neighborhood of dwellings within close proximity.

The thesis attempts to develop a kind of community-oriented, or civic, presence that fosters neighborly interactions even in an exclusively residential setting and explores how this civic presence can provide opportunities for connections between these micro-neighborhoods and the surrounding community and region. To begin this investigation, it is important to develop a sense of the origins of suburbs and the currently held perceptions about private and public space within the suburbs.

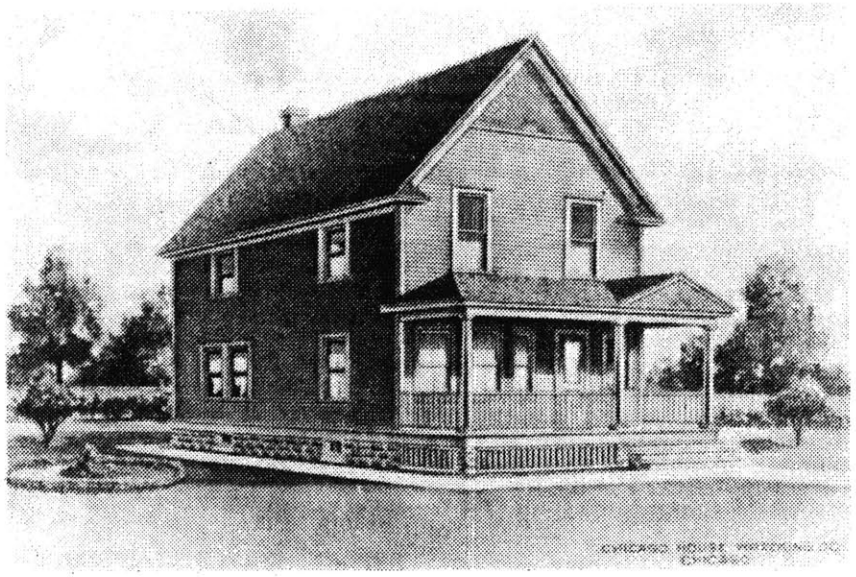


Fig. 3 The ideal (Gowans, pg. 95)

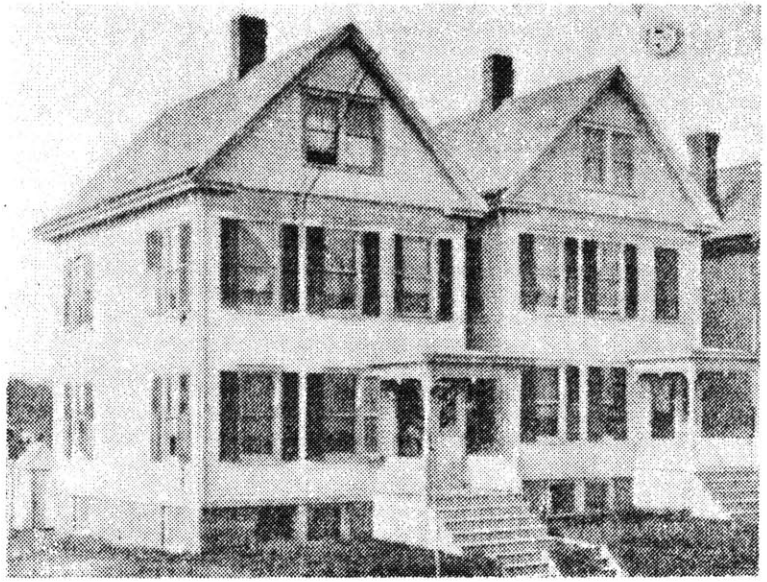


Fig. 4 The reality (Gowans, pg. 95)

Chapter 1:
Suburban Settlement History

Suburbs, loosely defined as primarily residential areas located outside the city core, first appeared in America in the late 1800's. As extensions of the city made accessible by street car service, suburban streets were typically gridded, providing simple and regular lot sizes for rapid development. While small multi-family houses were common, the ideal dwelling was the single house in its own park. Unlike rural homesteads, these houses were modeled on mansions, with all their implications of show of status and hierarchy of served and servants[1], and reflected the residents' continuing affinity with the social nature of the city street.

Houses, even the multi-family houses, were free-standing and typically faced the public realm with a formal facade and garden. Backyards (sometimes served by a mews) were for service function. Porches, especially wrap-around porches, provided formalized outdoor relaxation and a semi-private transition from public street to private interior. The suburban street of this time reads as a formal face to the public realm.

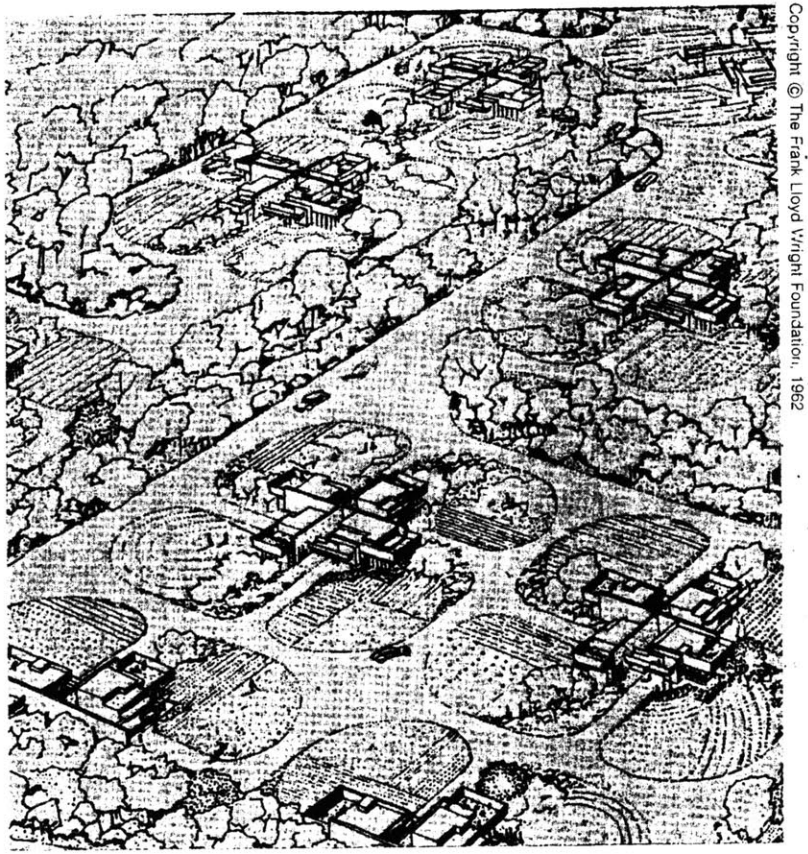
At the turn of the century, Frank Lloyd Wright was designing suburban houses that reflected and shaped American suburban housing ideals; these houses also give clues to how suburban streets would come to be shaped with the advent of the car. His vision transformed the individual dwelling from "a miniature version of the English gentlemen's residence into [one]

[1] Gowans, Alan, The Comfortable House, M.I.T. Press, 1983, pg. 72.

that was far more open, functional, and in tune with modern life"[2], but turned away from the street as social place. While designed in the late 1930's, Suntop homes is an interesting example of Wright's formal treatment of the street: the relationship of each house and yard to the other houses within the pinwheel cluster is formally shaped, while the public realm appears as left-over space. Streets were most important for access and picturesque landscape views, but not for actively promoting a sense of community.

[2] Barnett, Jonathan, The Elusive City, Harper & Row Publ., New York, 1986, pg. 85.

Fig. 5 Suntop Homes, by Frank Lloyd Wright (Sherwood, pg. 30)



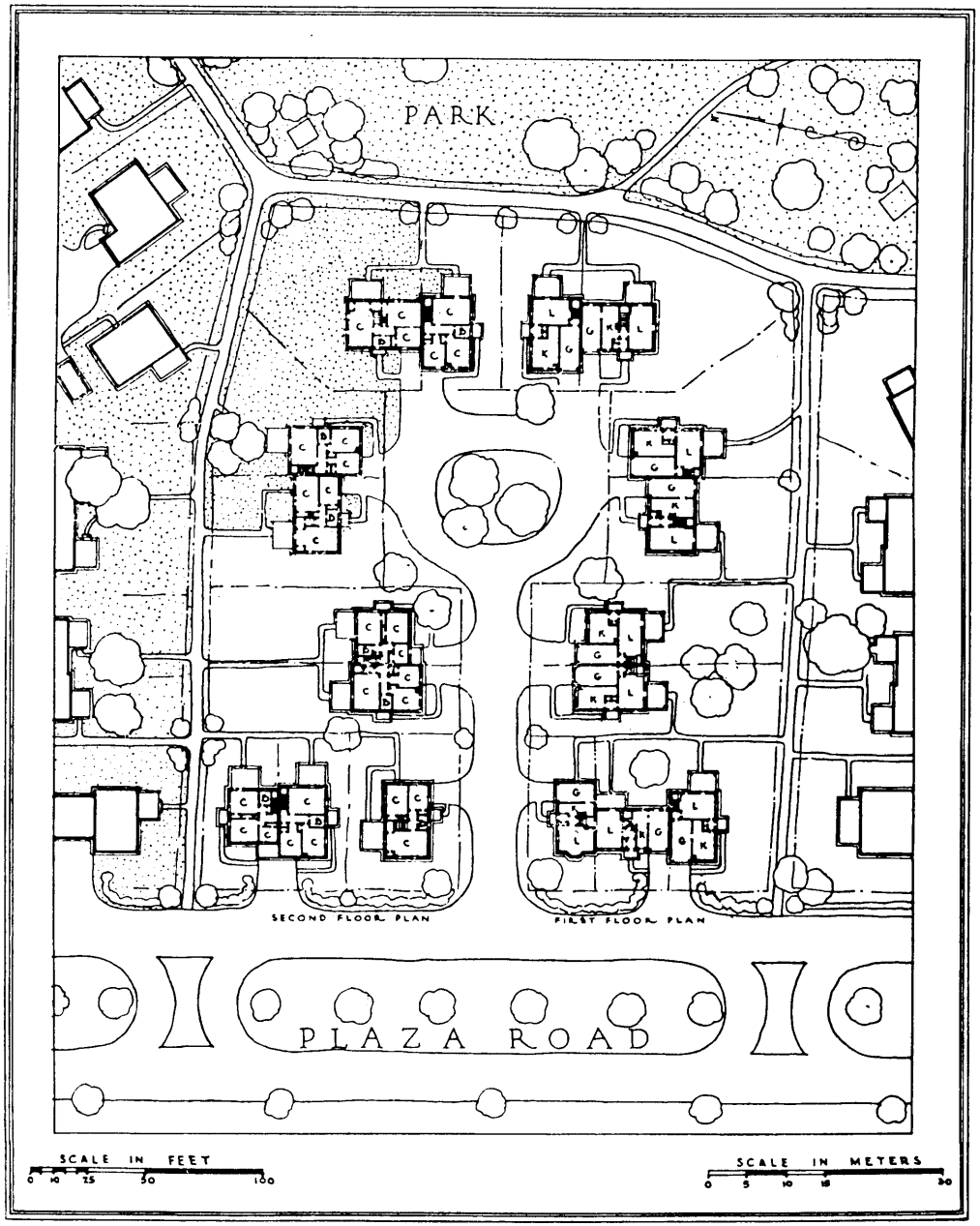
The development of suburban form over the past century was defined in large part by transportation: the size of one's community reflected whether one walked, kept a carriage, rode street cars or drove a car. While early communities and neighborhoods were clearly defined by walking distances, the rapid expansion of the suburbs in the early part of the century, started by streetcar service and then fed by automobile access, eroded this sense of community boundary.

Garden Cities

The Garden Cities movement of the early 1900's seems a clear response to this erosion: the theory was that new cities were to be built with a size and a boundary that supported self-sufficiency. While few new cities were built, and none matched the self-sufficient ideal, the ideas of limits to community size were enormously influential. Clarence Perry's concept of a neighborhood unit, "a group of houses and apartments large enough to require a primary school"[3], intensified this, and garden communities like Radburn, N.J., designed by Henry Wright and Clarence Stein in 1928, gave form to the idea.

Radburn, with its beautifully defined inner space and greenway system, was a model of the "super block": a node of refuge and car-free space along a transportation corridor (the train, initially, but now the highway). At Radburn, the super block was to be linked to other super blocks by what was hoped to become a network of pedestrian greenways. The car and pedestrian experience were to be separated: community life would center around the inner space and the streets were to be for access and service. House form reflected this ideal: houses fronted the walkway and greenway system, with backs to the garages and cul-de-sacs. (As the importance of the car in residential life grew, the functional organization flip-flopped: the cul-de-sacs became the front and the walkways developed a more backyard quality.)

[3] Barnett, Jonathan, The Elusive City, Harper & Row Publ., New York, 1986, pg. 83



Radburn depended on institutional community structures that were separate from its host, the town of Fairlawn. The community was built not just from its super block form, but from an extensive effort to develop programs for arts, sports, discussion, and the whole gamut of municipal activities one associates with a town. While thriving as a community, one effect was the formal and institutional exclusion of the town nearby. The physical boundaries of the super block were augmented by institutional boundaries.

The super block association of civic space with a pedestrian-only environment was to be very influential, especially for its separation of uses. A vivid example is the modern shopping mall, with its car dependence and completely internal pedestrian life. Although a

Fig. 6 Burnham Place cul-de-sac, Radburn, NJ. (Stein, pg. 56)

vital part of socio-economic life, drivers in cars are separated from the civic experience. The tendency to exclude this important aspect of modern life has served to internalize, or privatize, the public experience.

Plans to extend Radburn were destroyed by the depression of the 1930's and now the community is surrounded by typical suburban mass-production houses. The planning and support of places like Radburn require much care at many levels. The demand for inexpensive housing after World War II meant developers wanted to build quickly and expediently and for the most part left civic concerns for others. Tract developments were born.

Mass production

Fig. 7 Postwar subdivision (Rowe, pg. 45)

Levittown, N.Y. was the first and most famous of the tract- house developments of the post-war years. Here, modernist ideals of formal egalitarianism, combined with the desire for mobility and the need for quickly and easily built houses, produced acres of regular, simple houses along streets designed for cars. The great American paradox of individuality is revealed: each house is an object building set on a naturalistic sheet of lawns[4], and can be seen as an individual duplicating the experience of all the others. Greater mobility, both from the boom in car use and in terms of jobs and social status, meant that houses were increasingly perceived as commodities that one invested in. The social connection to community was de-emphasized as a house's curb appeal, or visual appeal from a moving car, became a crucial selling point. Visual conformity, which provided a measure of security and community identity, was also an important part of the sale.

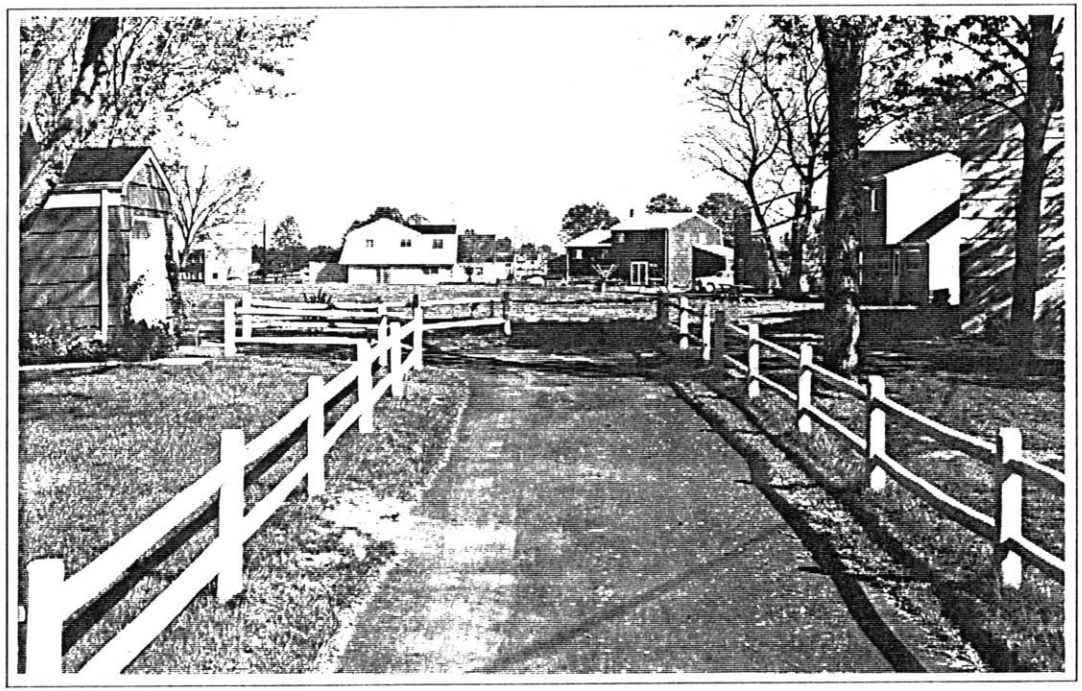
[4] Littenberg, Barbara, from speech at MIT Urban Housing lecture series, April 1994

Fig. 8 Cul-de-sac tract: "shared" land isolated by roadway. (Rowe, pg. 45)

In tract development communities, the individual home and backyard took on even greater importance in neighborhood life: small-scale public places were not provided. All land was either privately held in lots, was programmed at the large scale (ballfields, schools) often at great distance, or was the street. Commercial and industrial uses were excluded from residential areas, which were no longer within close proximity. Dependence on cars increased.

This pattern has been intensified in recent years as developments are built with larger houses on smaller lots, but with the same sharp boundaries between large-scale public ownership (streets, recreation) and small-scale private ownership. Without the small-scale public spaces or other desti-

Fig. 9 Cluster development with 'village green' in Hillsborough, NJ. Note minimal privacy for back yards, fence across end of driveway. (Whyte, pg. 9)

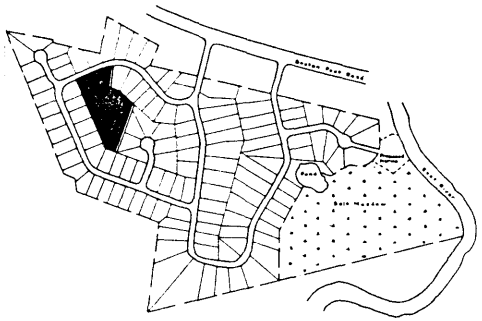


nations within close proximity, pedestrian life on the streets is minimal: the streets are often scaled for a larger regional use (such as fire trucks). The next smaller scale is a big jump down to the private house and back yard, the only retreat from the very public scale.

Clustered housing

As an alternative to this typical suburban build-out, and in continuation of the Garden City tradition, planned communities such as Reston, VA and Columbia, MD were designed and built in the 1960's-70's. These new towns took lessons from developments like Radburn, including extensive greenways, recreation areas, and roads substantially separated from pedestrian traffic. The new towns emphasized neighborhood unit planning, with neighborhoods built as separate, formally identifiable entities, provided with town services and a town center at the point of unit overlap. Varieties of housing type were included, from single detached to townhouse clusters and apartments.

Fig. 10 Guilford, CT. Most of common land is salt marsh. (Whyte, pg. 81)



The appeal of the integration of nature and housing in these new towns influenced the popularity of a new form of residential planning: clustered housing and planned unit developments, or PUDs. Started in the 1960's, the land allocation system of PUDs featured smaller building lots, and often attached housing, in order to pool open space for community use. Where zoning laws specified a maximum density of units per acre developers could cluster the units to achieve the same density on smaller lots that were linked (however indirectly) to some community amenity. In many cluster developments, the open space was programmed for recreation (pools, golf courses); in many others the common land was left as

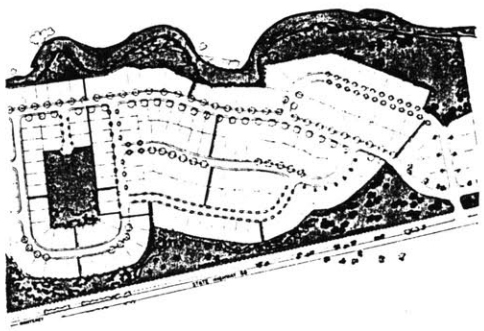


Fig. 11 "Subdivision open space furnishes scenic border for highway", (Whyte, pg. 80)

natural vegetation (generally, non-buildable wetlands). Developments were often required to be surrounded by a zone of greenbelt, partly for common land, but mostly to "create well-buffered, taut boundaries to separate [the clustered townhouses] definitively from single-family detached enclaves. And even when they are condominiums and not rented, their higher density in and of itself associates them with both cities and renters."[5] Neighboring enclaves did not make connections.

[5] Perin, Constance, Belonging in America: Reading Between the Lines, pg. 66

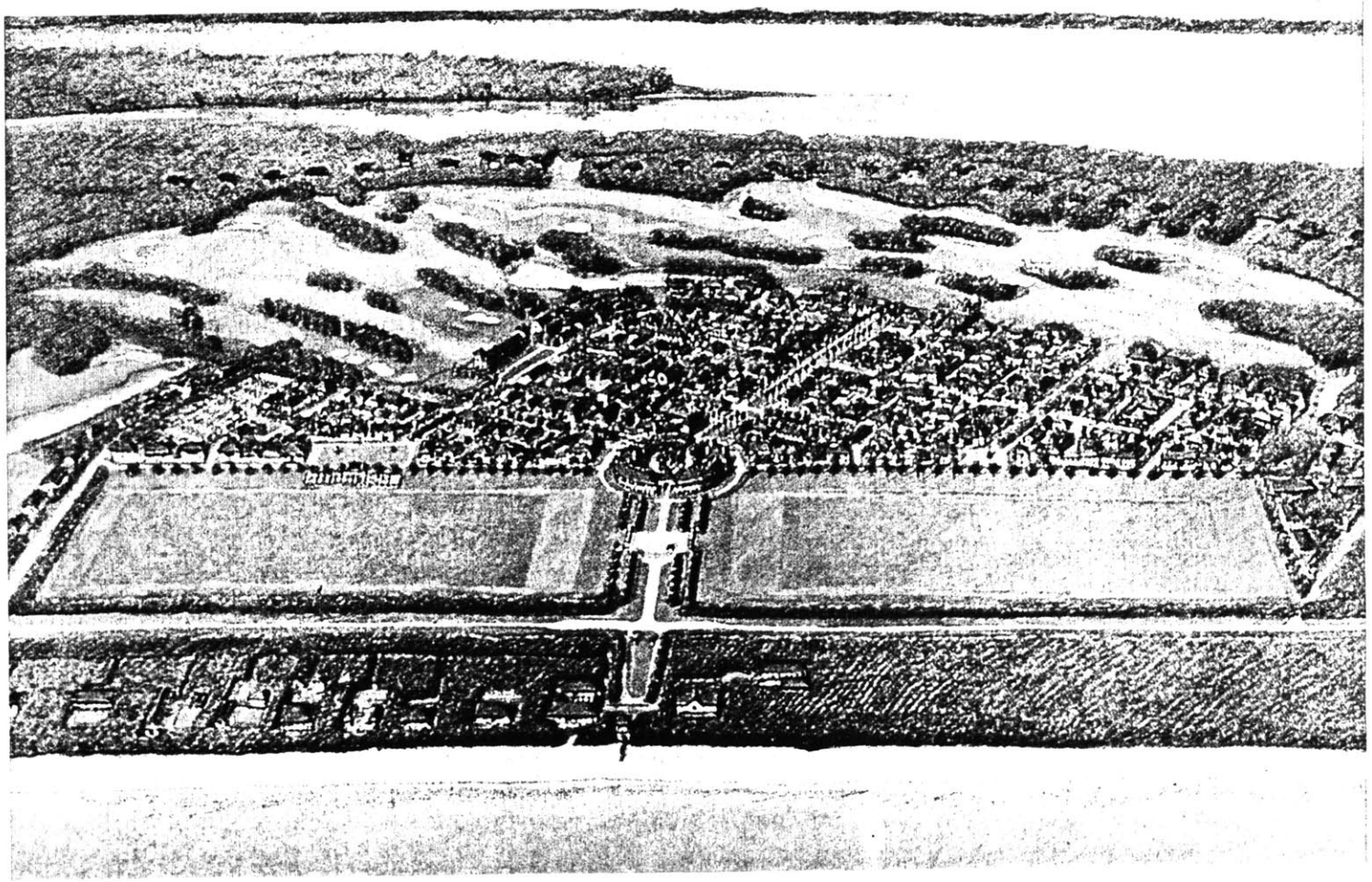
Fig. 12 Typical 'neighborhood unit' cluster development. One connection to main collector road. (Whyte, pg. 74)

Clustered housing was frequently organized in neighborhood units, like garden suburbs, but without the institutional focus: it was often just a version of tract development with a different organization of the large-scale open space. Housing was typically set around parking courts, with little provision for transition between public way and private interior: for privacy, or even semi-privacy, people retreated to the side facing the woods/view/wetlands beyond. Parking which usually dominated the front discouraged potential social activity in the street.

While some of the same front/back conditions occur at Radburn, there are two main differences that encourage greater social interaction in the street at Radburn:

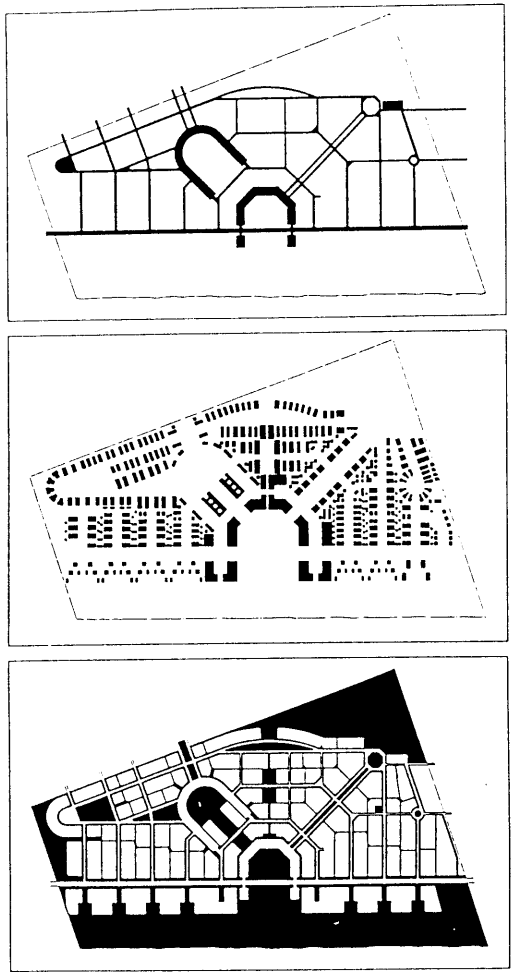
1) There is more house and entry garden at Radburn than parking (too little parking at Radburn, some residents say), which has encouraged *ad hoc* creation of semi-private sitting areas adjacent to houses along the cul-de-sacs. In condo PUDs, association rules often prohibit customizing of such outdoor spaces.

2) The pathway system at Radburn allows convenient connections to residential or commercial development outside the super block. Pedestrian ways in PUDs typically link one parking court cluster to another. Though used recreationally, these paths serve no larger civic purpose of linking the development to surrounding areas or to necessary commercial services beyond the development. Wright and Stein and other greenbelt advocates had hoped that greenbelts would act as regional pedestrian linking systems; unfortunately, in many contemporary developments, distances to commercial services are too great. Residents must depend on road networks and the greenbelts become vestigal.



Left - Fig. 13 New Town of Windsor, FL, designed by Andres Duany and Elizabeth Plater-Zyberk. Seaside pattern, but dropped between a golf course and what look like polo fields. The buffer zone goes up-scale. (Architectural Design, vol 63, 9/10 1993 pg. 30)

Right - Fig. 14 Resort community of Seaside, FL, by Duany and Plater-Zyberk.
Top: Roadways
Middle: Built structure
Bottom: Pedestrian space.
(Rowe, pg. 208)



New Urbanism

The 1980's saw the resurgence of interest in the relationships, particularly in traditional, dense urban areas, between private residential form and public streets and places. The resort community of Seaside, FL, designed by Andres Duany and Elizabeth Plater-Zyberk (DPZ), was an explicit critique of single-purpose, car-dependent "communities" and promoted figural space and formal continuity as the way to reintegrate civic and (light) commercial life into the residential fabric. This "new urbanism," now taken up by many designers, emphasizes gridded streets in order to optimize connections within the development and extension beyond.

While Peter Calthorpe's "pedestrian pocket" proposals emphasize links to public transportation, a good idea that one hopes will reduce car use, many of DPZ's projects present an idealized image of a pedestrian-scale development, but require car travel for connection to the larger civic world. The clear boundaries and few streets extending beyond the community at developments such as Windsor (a Florida new town with golf course perimeter) and Kentlands (a 350 acre new community in the Washington DC suburbs) are perhaps artifacts of siting, but indicate an exclusive sensibility. This is quite at odds with the civic imagery DPZ are trying to project with their revival of small town building elements and landscape details. Ultimately, the formal relationship of these DPZ projects to their context is similar to that of other neighborhood unit enclaves.

In their attitude toward the car, many of the new urbanists seem to have thrown the baby out with the bathwater: in their eagerness to reintegrate the pedestrian experience into the life of the street, they have neglected the good lessons of places like Radburn. This is clear by the way that, for example, Duany "is less likely to use words like 'family' and 'community space' than 'citizen' and 'public realm.'"[6] Actual neighborhood life involves children and elders, and shared spaces not always adjacent to cars. While garden cities under-emphasized the street, new urbanists may be in danger of over-emphasizing the street as the only "locus of the civic realm."[7]

[6] Sundell, David, Toward the re-invention of public space, MIT unpublished M.C.P. thesis.1990, pg. 47.

[7] ibid, pg. 47

Fig. 15 Kentlands, MD, designed by Duany and Plater-Zyberk. The civic potential of a town green is overwhelmed by streets and parking

Fig. 16 Gated enclave. (Rowe, pg. 38)

Now

American suburbia is undergoing a subtle change: many suburbs are no longer just bedroom communities for cities, nor are they the transition zone between city and rural life. Suburban towns now host large working populations in decentralized office buildings and service industries. Women who once worked primarily as homemakers and maintained the social links to neighborhood associations, libraries, schools, and other civic institutions are now working in the next town over or are focussed - like many men - on a home-based business. With employment increasingly decentralized and with so-called urban problems of traffic, poverty, and crime more apparent in the suburbs, the image of the suburb as a remote residential place is obsolete.

The pace of life in cities, suburbs and rural areas has been speeded up not only by transit, but by communication, and now by the virtual community. The need for nodes of refuge from speed and even from information is high. Our houses are filled with information, and modern pursuits seem to emphasize that: we watch TV, play video games, use computers, read (some books, but a multitude of magazines). We need refuges that engage other senses, that are not dependent on being inside.

The place-based community is also important for the many whose work does not and cannot work by telecommunications-based information

processing. Caretaking of children, elders, ill or disabled people is fundamentally place-based. Unless children are programmed into group activities, they are rarely outside, unless in very safe, supervised areas. Individual enclosed yards provide safe places, but are isolating and require enormous duplication of attention (one adult per yard) and duplication of equipment (a swing set or pool in every yard). People want security and privacy outdoors: where many eyes watch out, there is more security but where none can see, there is privacy. Both types of outdoor experiences should be available.

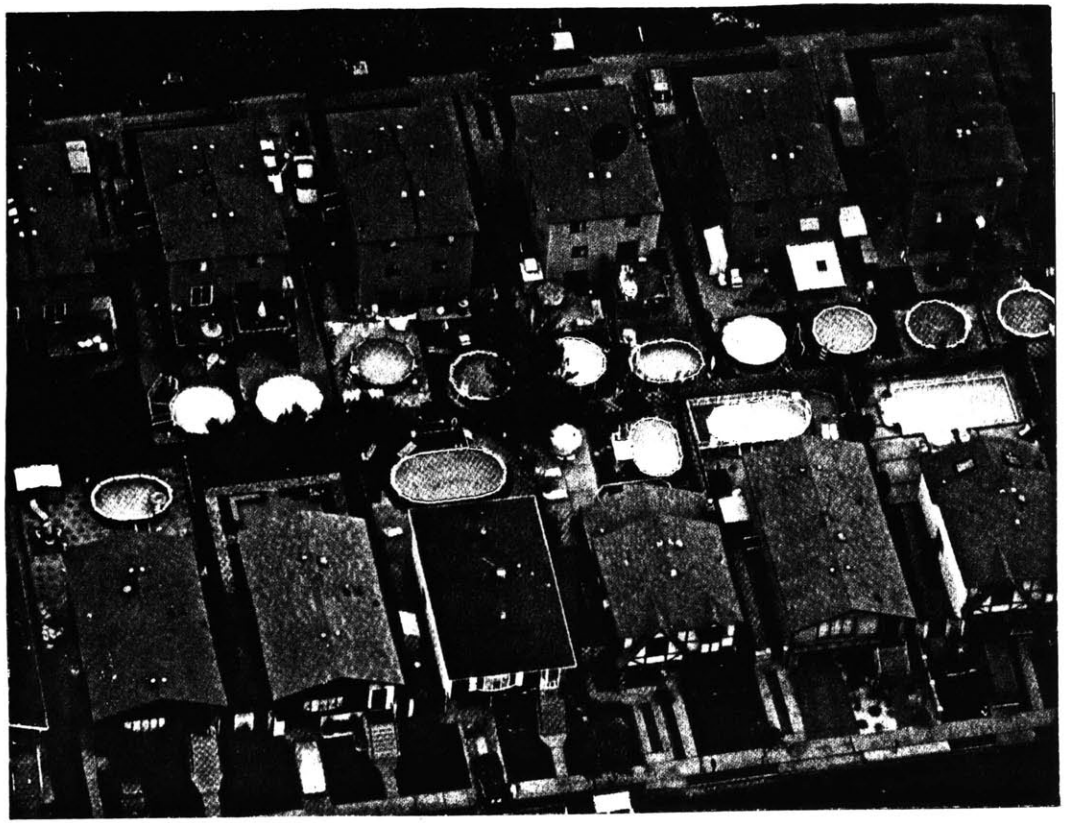


Fig. 17 Duplication, Staten Island, NY, photographed by Alex MacClean (Progressive Architecture, March 1994, pg. 63)

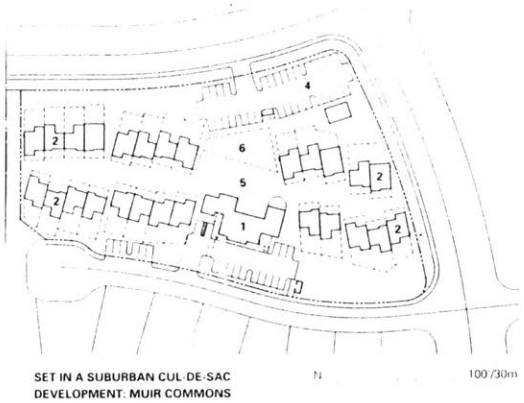


Fig. 18 California co-housing: a spatial and social enclave. (Progressive Architecture, March, 1993, pg. 94)

Fig. 19 New American house planning: sustainable rowhouse design by Troy West and Jacqueline Leavitt, with offices and common space within grouping. (Rowe, pg. 257)

Social changes and collective living experiences of 1960's and 70's loosened up definitions of family, but the failures of so many communes and the frustrations with group living have seeded dissatisfaction with sharing as an ideal. This skepticism, however, just underscores even more deeply the need for developing scales of privacy, so that the distinction between private and shared has some gradation. Much of the current discourse focuses on the need for more public space: what is really needed is more semi-public space, where thresholds of privacy are built at different scales.

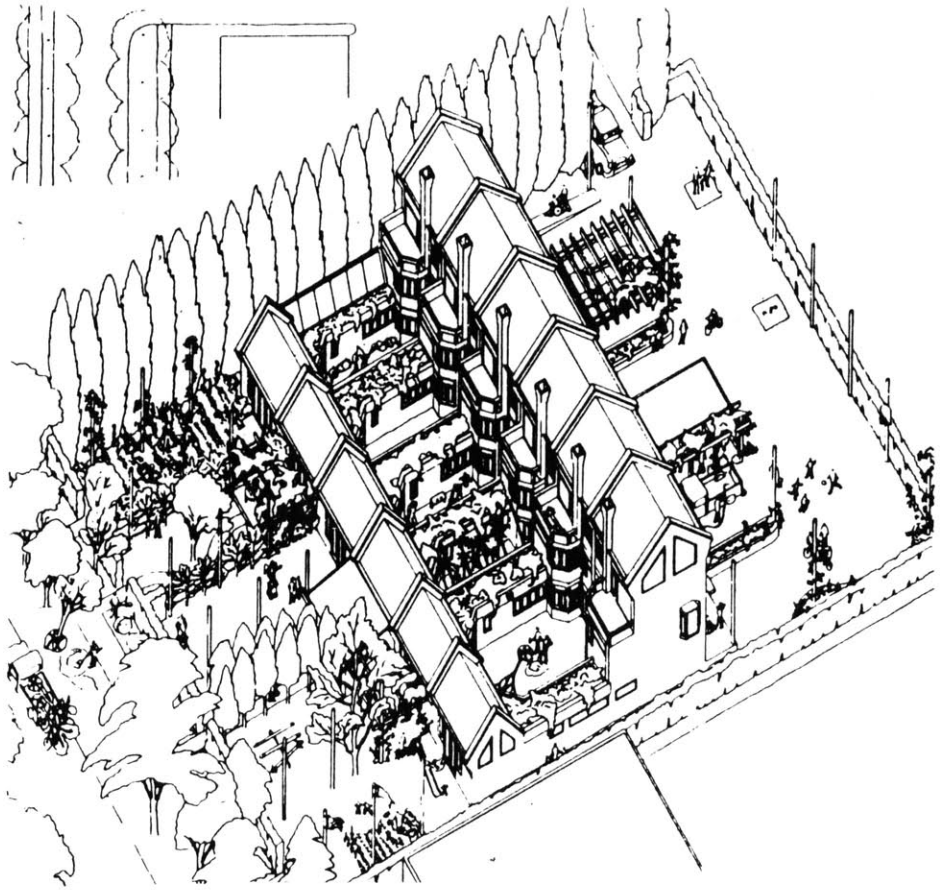


Fig. 20 A civic presence on the Minuteman Bikeway: an opportunity for connections to the town

Chapter 2:
Siting for Connections

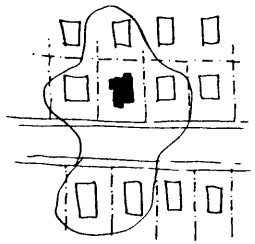


Fig. 21 "On a typical block each home is at the center of its own cluster" (Alexander, pg. 199).

Large-scale developments such as Radburn and Kentlands have been instrumental in creating new patterns of housing organization. Recent revival of interest in models of mixed-use residential communities indicates a desire for reintegration of the individual family or household into the collective life of the larger community. Rather than looking down at this problem from the large scale, I have chosen to investigate this urbanistic transformation of suburban development at the very small scale: the micro-neighborhood of dwellings within close proximity. This is the scale at which "neighboring" develops: some, such as Christopher Alexander, assert that most neighborly interaction takes place within a spatial cluster of 8 - 12 dwellings[8]. If this is the basic size of neighboring relationships, then it is particularly important to understand how to make shared space, and space with a civic presence, at this small scale. Suburbs need spaces that foster the traditional neighborly traits of cooperation, respect for privacy, and sense of community.

Civic Presence

One aspect of civic presence is the shared space, and shared institutional program, that mediates between scales, offering possibilities for sharing with the larger size of community while retaining territorial claim at the

[8] Alexander, Christopher, A Pattern Language, Oxford University Press, New York, NY, pg.199.

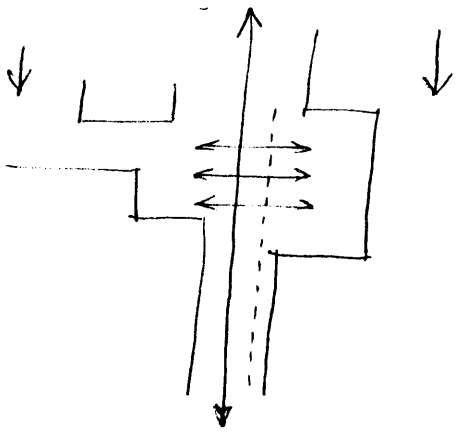
smaller scale. For example, while a neighborhood ballfield may be technically public to the whole town, it is "claimed" (people sense some responsibility) by the surrounding community. At the micro-neighborhood scale, the local street is usually the only shared territory; if there is (good quality) shared space, it can offer a microcosm of the civic experience of the larger town. But typically, the local street is truly public, offering little requirement for shared responsibility beyond the abstract ("I pay my taxes, the town will do it"). This investigation includes study of the characteristics of civic presence, and development of models of civic presence at even the smallest of scales.

Assumptions

My basic assumptions for transforming suburban neighboring are as follows:

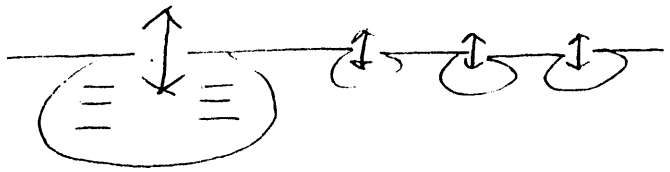
1) Spatial connections between dwelling and dwelling, and between dwellings and other places, must be developed, to offer many opportunities for interaction. These can be roadways, pathways, or open or closed spaces.

2) Each neighboring group must have shared space at a variety of scales (including a shared space as part of the individual dwelling) with some expression of civic presence. The shared space, at the larger scales, should be designed to be shared with the community beyond the development.



3) These shared spaces must also create thresholds of privacy, so that perceptual gates give clues to the scale of the place.

4) Enclaves are made by restricted access: a single access prevents wider connections to the community and privatizes the street. More than one entrance to create permeability.

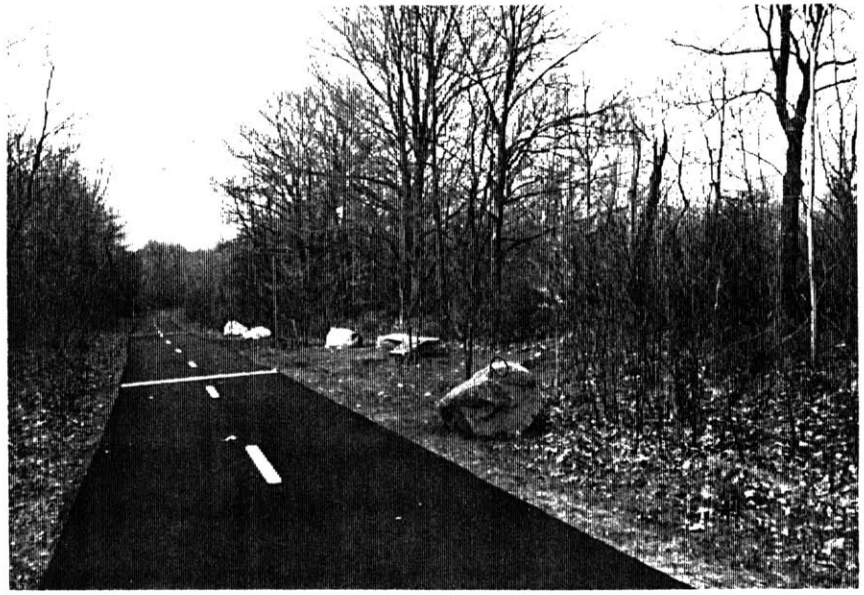


Recognizing that the suburban fabric is rather tough, I have focussed on the clustered model: there is more latitude for zoning flexibility within the Planned Unit Development (PUD) regulations than within standard residential zoning.

Siting

Site choice is crucial for a small development that emphasizes building connections at a variety of scale. I have chosen to work in existing suburban fabric, rather than in a previously undeveloped area, to take advantage of existing suburban connections. My site choice became an exercise in developing a set of criteria, then analyzing existing resources and formal structure for a variety of sites, all the while focusing on the impact the sites would have for intensification of the existing suburbs.

Figs. 22 & 23 Minuteman Bikeway views



The Bikeway

When one does not have the luxury of laying down a larger framework, as in Radburn or a "pedestrian pocket," the first issue is how to provide connections to larger regional amenities. To provide this linkage, I investigated sites in the Boston area suburbs of Lexington and Bedford that are along the newly opened Minuteman Bikeway, an abandoned railbed that has been converted to a paved bikeway.

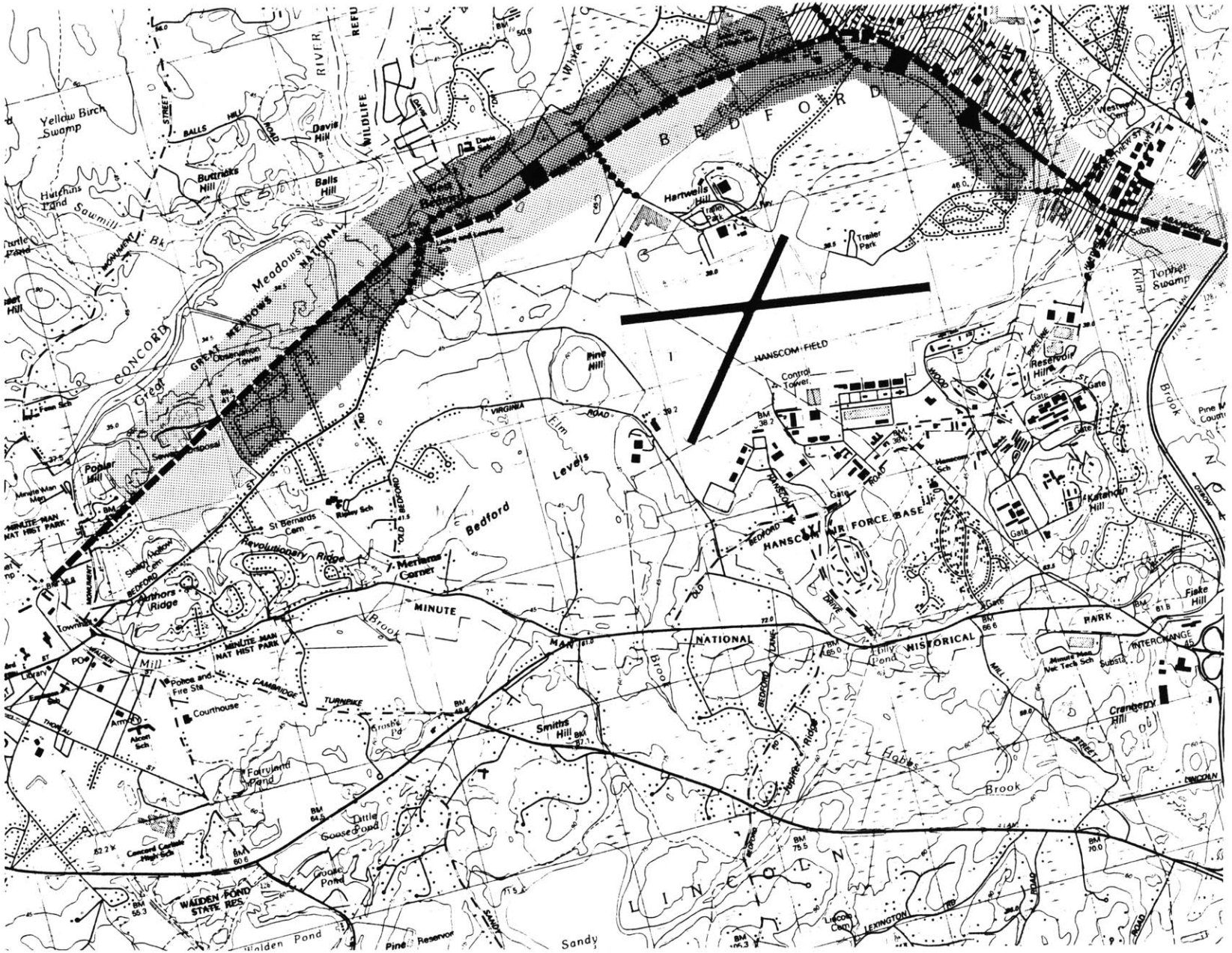
This re-use of an existing corridor creates a transportation alternative that connects the Red Line subway stations in Cambridge and Boston to suburban communities all the way out to beyond the ring highway, Route 128.

The neighborhoods bordering the railbed have long turned their backs to it, creating a wall to access; along the bikeway there are opportunities for establishing new patterns of use over the existing street/house networks.

The old railbed runs roughly parallel to a major arterial road, Massachusetts Avenue, for most of its length, and generally runs along the edge of unbuildable, flat swampland. (see Fig.) This has yielded a two-sided quality: rarely are the uses on either side of the way similar. One side will be industrial, the other residential, or green space/residential, or commercial/residential, except where a road crossing encourages continuity of use across the way. As an adaptive re-use, the bikeway has interesting potential for connecting separated uses.

The experience of using the bikeway now is of being in a limited-access way. While this a wonderful treat for those tired of battling street traffic, and creates a kind of community of bikeway users, there are few crossings, and where there are, they are relatively understated. Long stretches of the bikeway have little or no connection to the housing fabric beyond the abutting lots.

There is little community presence focused on the bikeway; evidence of this is that some vandalism, a crime of opportunity, has shown up. Where there is regular attention, even if casual, vandalism is less likely to occur. Siting a new development along the bikeway, with a goal of increasing connections from this regional scale amenity to the local neighborhood sale, would increase the community presence along the way.


BEDFORD
CONCORD
LINCOLN
HANSCOM FIELD
HANSCOM AIR FORCE BASE
Control Tower
Trailer Park
Hartwells Hill
Pine Hill
Reservoir Hill
Katahdin Hill
Fiske Hill
Great Meadows
Great Meadows National Wildlife Refuge
Yellow Birch Swamp
Hutchins Pond
Sawmill Bk
Buttricks Hill
Balls Hill
Davis Hill
Balls Hill Road
Virginia Road
Elm
Levels
Bedford
Old Bedford Road
Bedford Turnpike
Revolutionary Ridge
Merriams Corner
Minute Man Nat Hist Park
Minute Man Visitor Center
Authors Ridge
Poplar Hill
St Bernards Cem
Ridge Sch
Police and Fire Sta
Courthouse
Library
Post Office
Town Hall
Mill
Brook
Smiths Hill
Fairyland Pond
Little Goose Pond
Goose Pond
Walden Pond State Res
Walden Pond
Pine Reservoir
Sandy
Hobbs Brook
Tophet Swamp
Kiln Brook
Lincoln Cem
Lexington Rd
Lincoln Road
Crossing
Interchange
Substa
Gate
Trailer Park

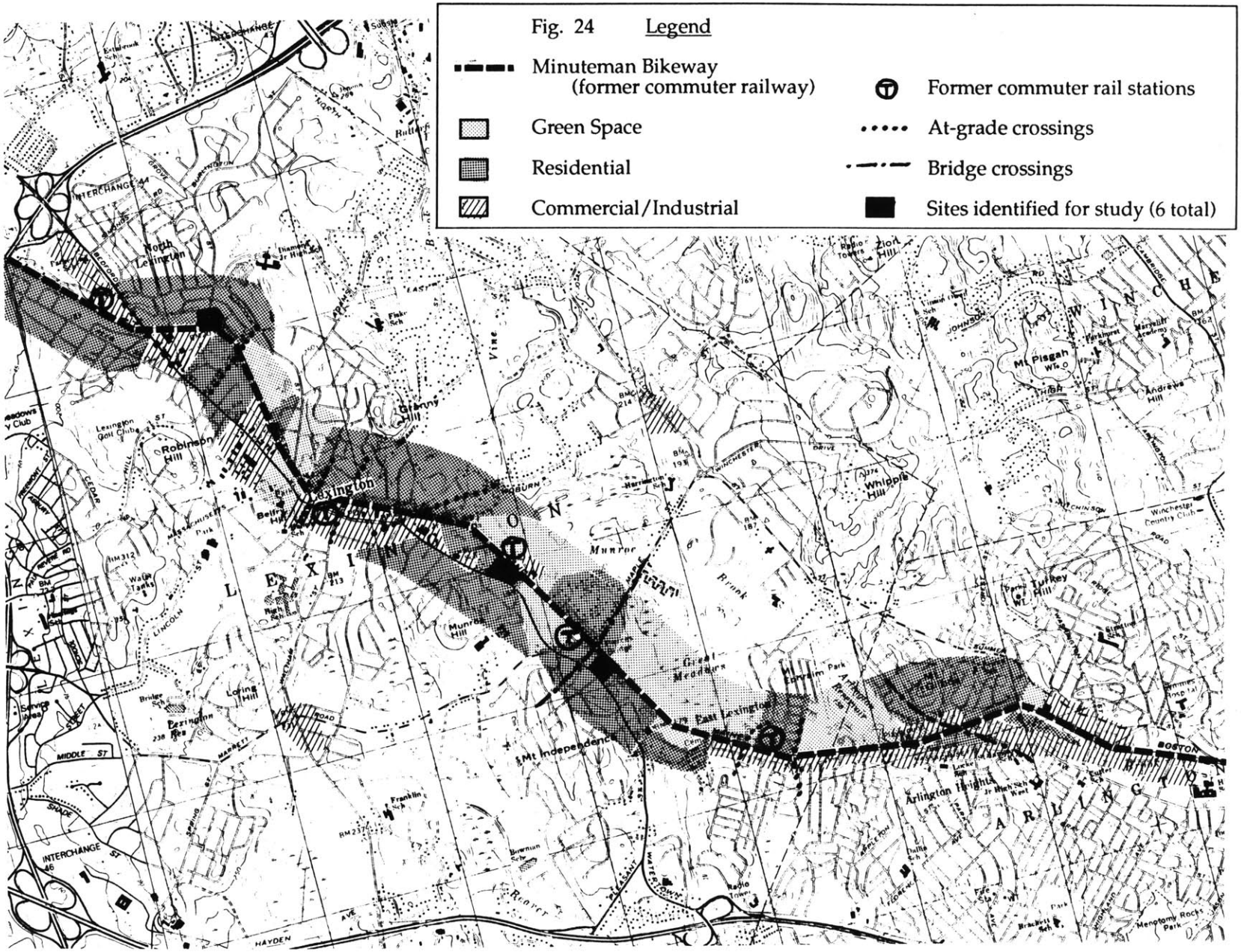
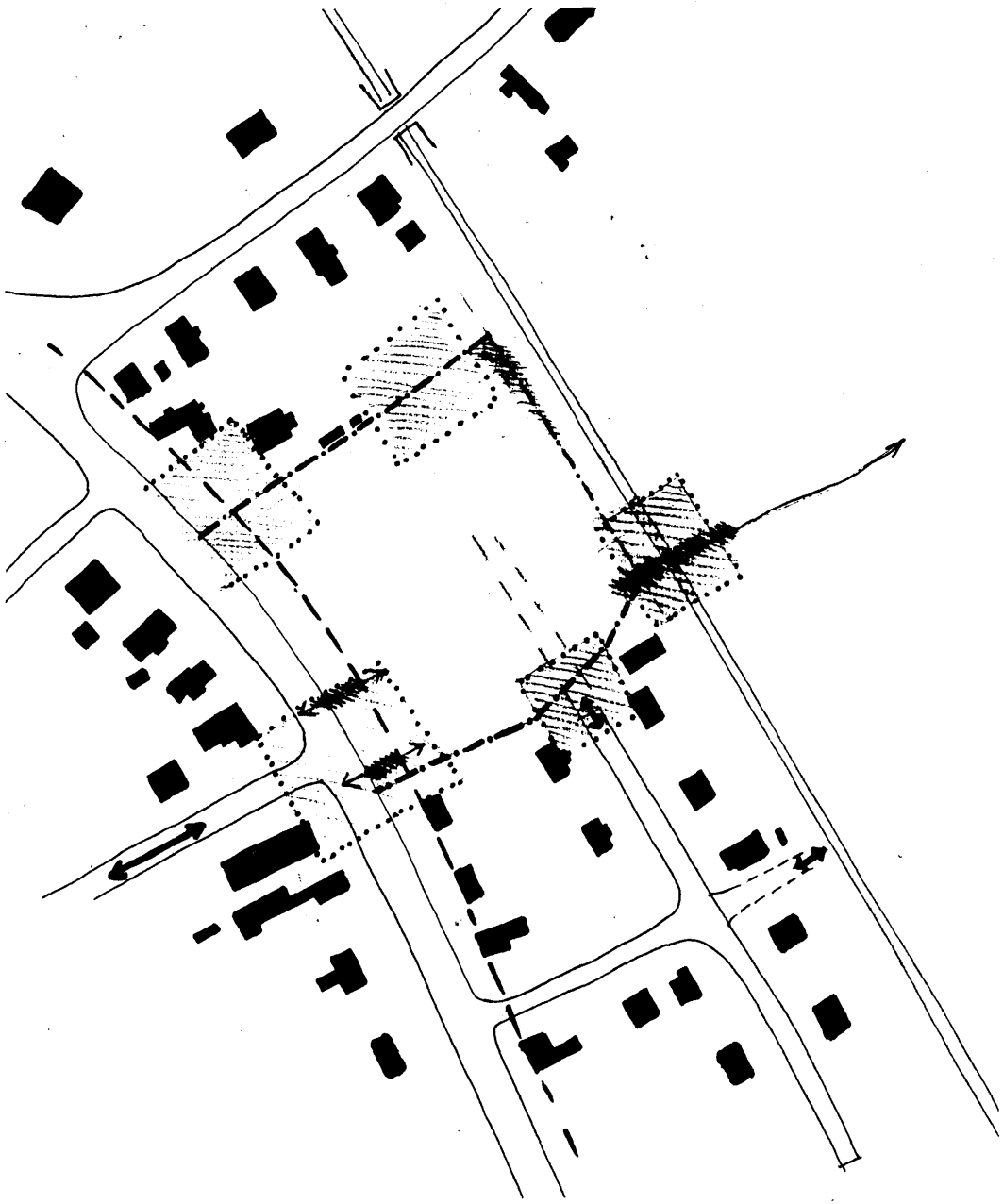


Fig. 24 Legend
Minuteman Bikeway (former commuter railway)
Former commuter rail stations
Green Space
At-grade crossings
Residential
Bridge crossings
Commercial/Industrial
Sites identified for study (6 total)
Lexington
East Lexington
Arlington Heights
Mt Independence
Mt Pisgah
Whipple Hill
Robinson Hill
Munroe Hill
Turkey Hill
Great Meadows
Munroe Brook
Vine
Interchange 45
Interchange 46
Middle St
Hayden Ave
Boston



Siting criteria:

1. Bikeway adjacency.

2. Distance from existing bikeway access crossings: to develop a local civic presence that included a bikeway crossing connecting to a path across the site. The crossing should add, not compete with any existing crossings . Re-inforcing an existing but marginal crossing would be a benefit.

3. Parallel road: the site should be bounded by two public entities, so that a pathway across would be an obvious link.

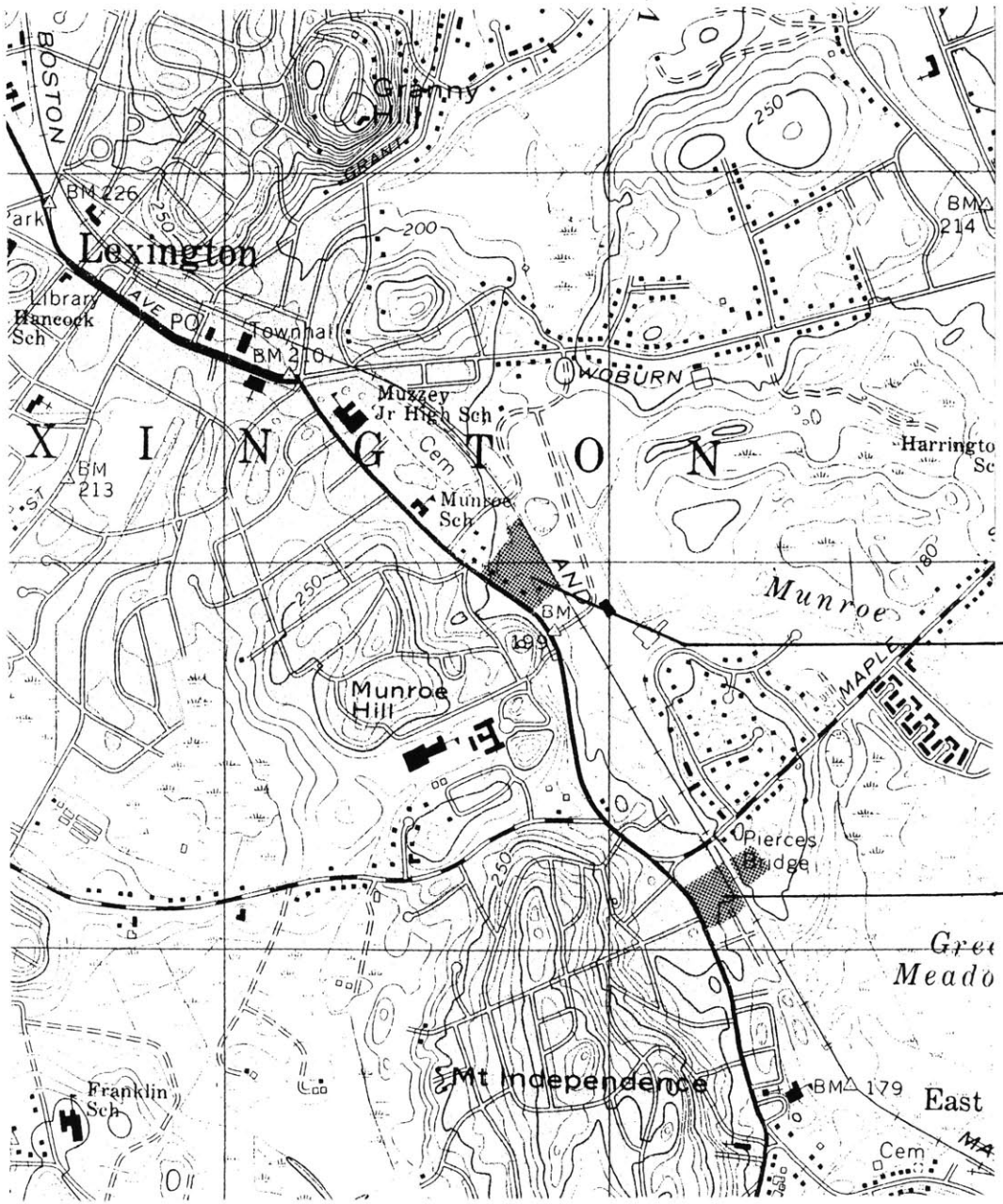
4. Lot size of 3 - 4 acres, within a uniformly residential fabric with a density of 2 - 4 dwelling units (du)/acre. (Pre-existing lot vacancy was not required) My development would include 8 - 12 houses plus common land, pool, and play area.

5. Lot geometry: depth of at least 250 feet from street to bikeway property boundary, so that organization would not be too restricted by shallowness of the lot. In a site of 3 - 4 acres the width could not exceed about 600 feet.

6. No immediately adjacent commercial or civic presence along road: I sought a certain generic residential quality of the surrounding fabric.

7. Potential for siting of shared facility: there should be some potential across the bikeway for siting a shared facility such as a playground/ pond/picnic area/pool/ daycare, perhaps integrated with more housing.

I discovered six areas along the bikeway that could meet these requirements: crossings at their locations would reinforce the pre-existing, but broken, rhythm of crossings along the way. The two sites I investigated more fully are also close to the locations of former commuter rail stops (long gone: commuter rail service was discontinued in the 1950's and the station buildings and grounds destroyed soon after).

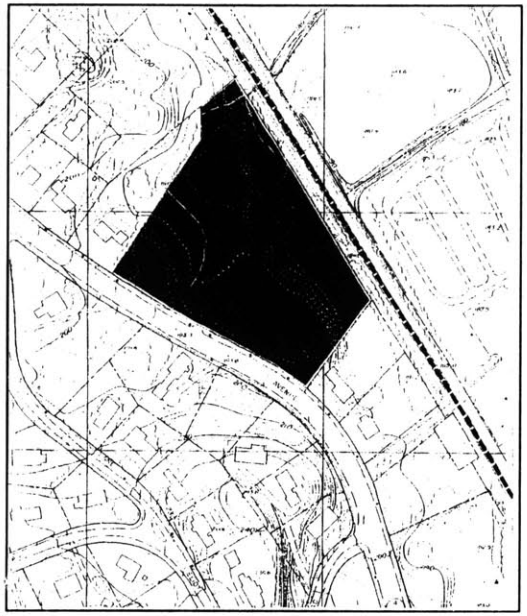


Munroe site (preliminary site)

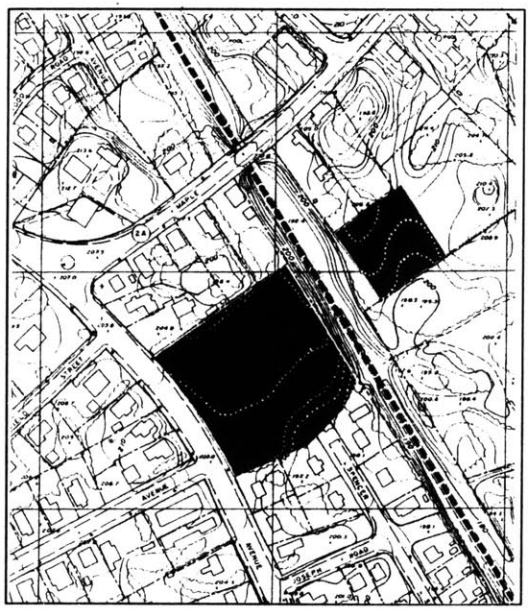
Pierce's Bridge site (final site)

Preliminary sites: uncovering connections

In order to explore some of the implications of site geometry and of local resources on settlement pattern, I studied two sites that were fairly close, but with dissimilar characteristics:

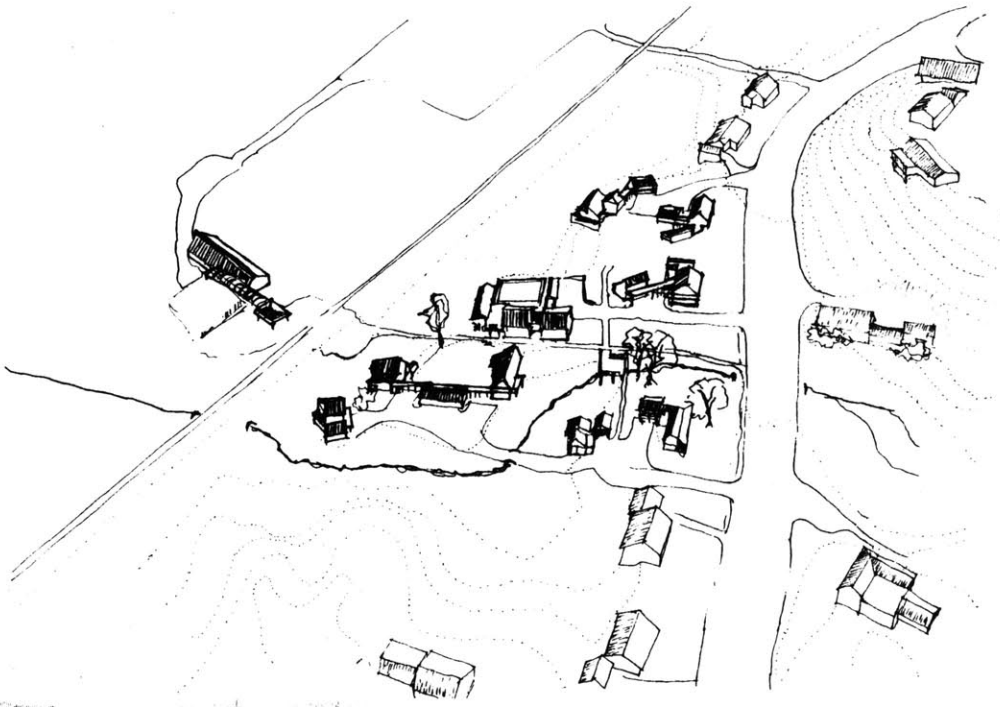


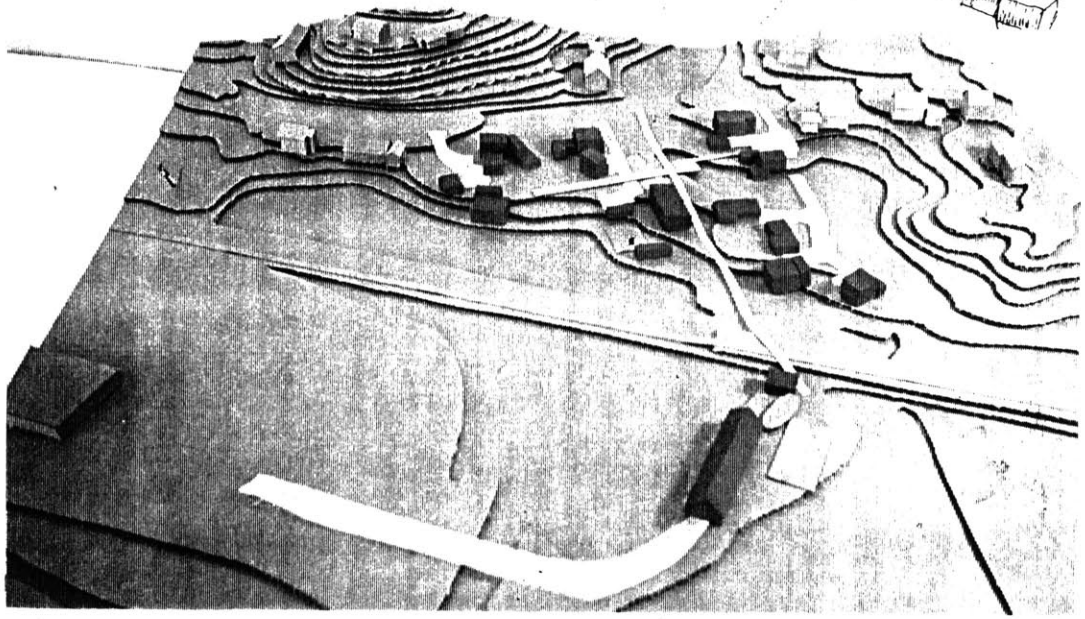
The Munroe site (preliminary site)
- in area of 2 - 3 du/acre
- 4.0 acre site
- trapezoidal geometry
- stream and lowland area on site
- across bikeway from commercial nursery, potential for road access to area across bikeway
- across road from historical monument, Munroe Tavern



Pierce's Bridge site (final site)
- in area of roughly 4 du/acre, ranging up to 7 du/acre
- 3.1 acres
- square site, with open land across bikeway
- secondary road access to site
- existing marginal footpath across bikeway.
- Bus stop, crosswalk and traffic light on Mass Ave.

Exploring settlement form at Munroe site: Imposing the Radburn pattern.





In the end, the critical element in choosing to work at the Pierce's Bridge site was the potential to build, and rebuild, connections in a variety of ways, and at a variety of scales. Building this site with pathways and shared spaces offered the possibility to reorganize not just the site, but to alter the perceptions of the neighboring community.

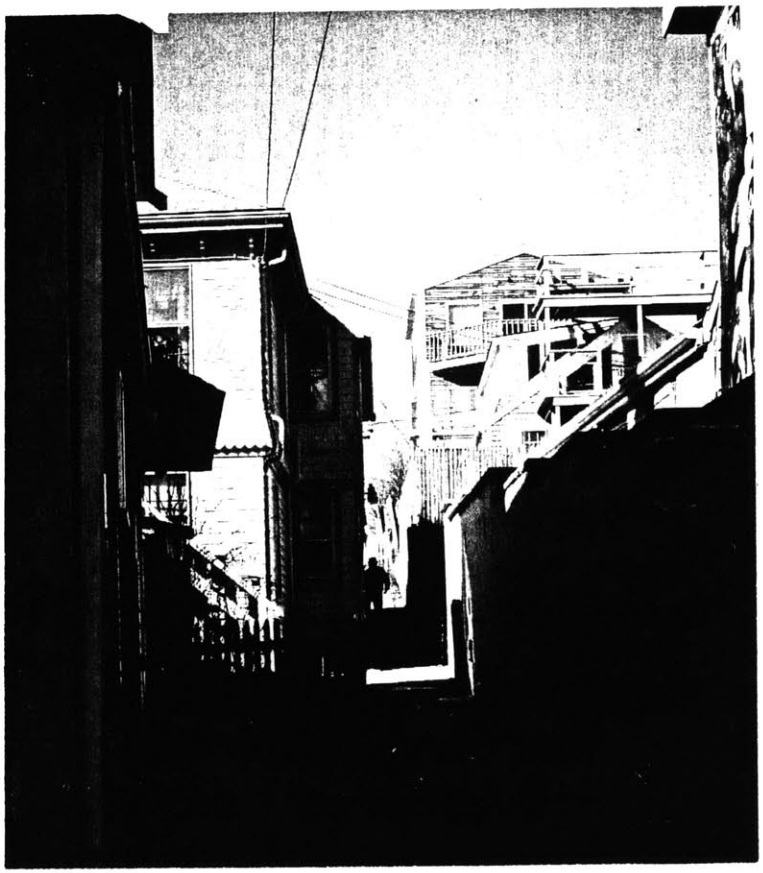
Pierce's Bridge seen from the bikeway; site to left (existing structures removed for purpose of study). Crossing in foreground.

Fig. 25 Pathway at Hampstead Heath (Unwin, pg. 10)

Chapter 3:
Pathways and Precedents

Part of my consideration of shared space was to consider what pedestrian life is like. Pathways as an alternative to street life, and especially pathways that lead to public or semi-public spaces that are not part of the street, are critical to understanding connections of public to private space.

When I visited Radburn, I discovered how the figural space made by a pathway can expand to create an outdoor "room." At Radburn, this is often built from the collection of houses and their relationship to the path. In other places, the "walls" are as simple a collection of trees, fences, and hedges. In my project, I was interested in developing a similar network of pathways, with nodes of crossing that were reinforced as outdoor "rooms."



Above: Fig. 26 Pathway in Provincetown, MA. Leads back from street past several houses and their private yards.

Fig. 27 Pathway at Greenbelt, MD. Another Garden Cities-inspired planned community designed by Henry Wright and Clarence Stein. Pathway connects cul-de-sac to cul-de-sac.

The structure of pathways informs their use: the width and distance one can see are critical indicators of privacy thresholds. At Radburn, the paths are straight and long, with glimpses, from time to time, of activity at the other end. The network of pathways that go from the head of one cul-de-sac to the next feel quite public, even though one passes directly next to houses. "Street" lights along the pathways alert one to the public nature of the pathway. Then, by looking beyond, one sees the continuation of the path, and so understands that the pathway serves a larger scale than the individual house.

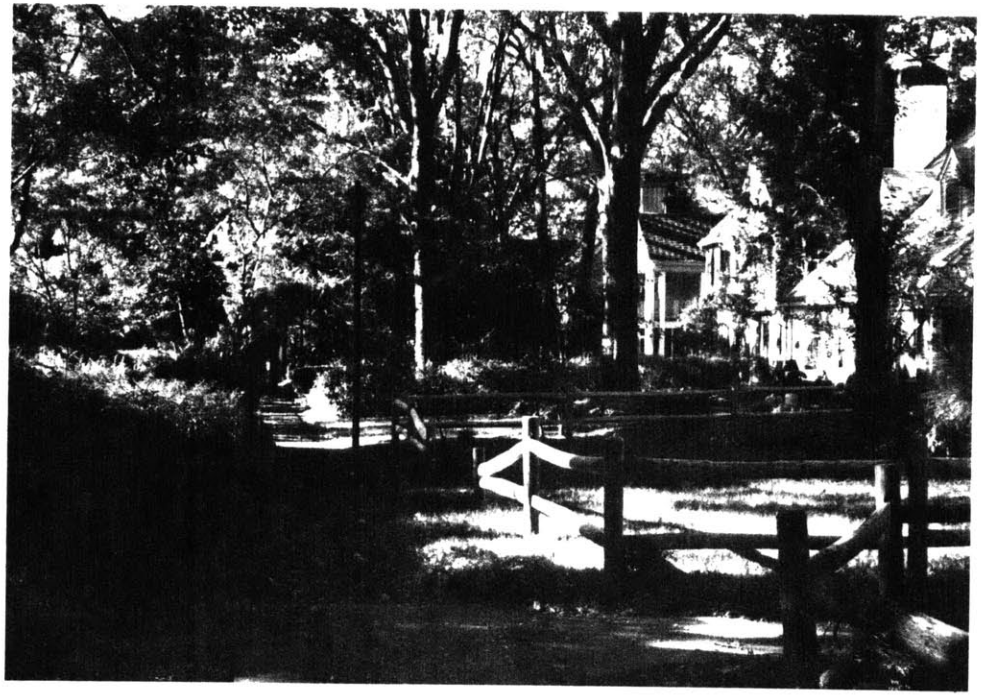
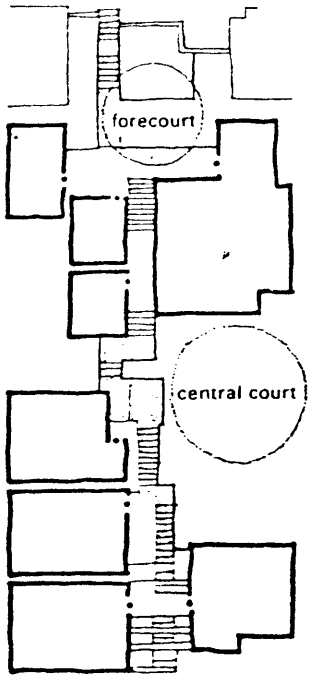
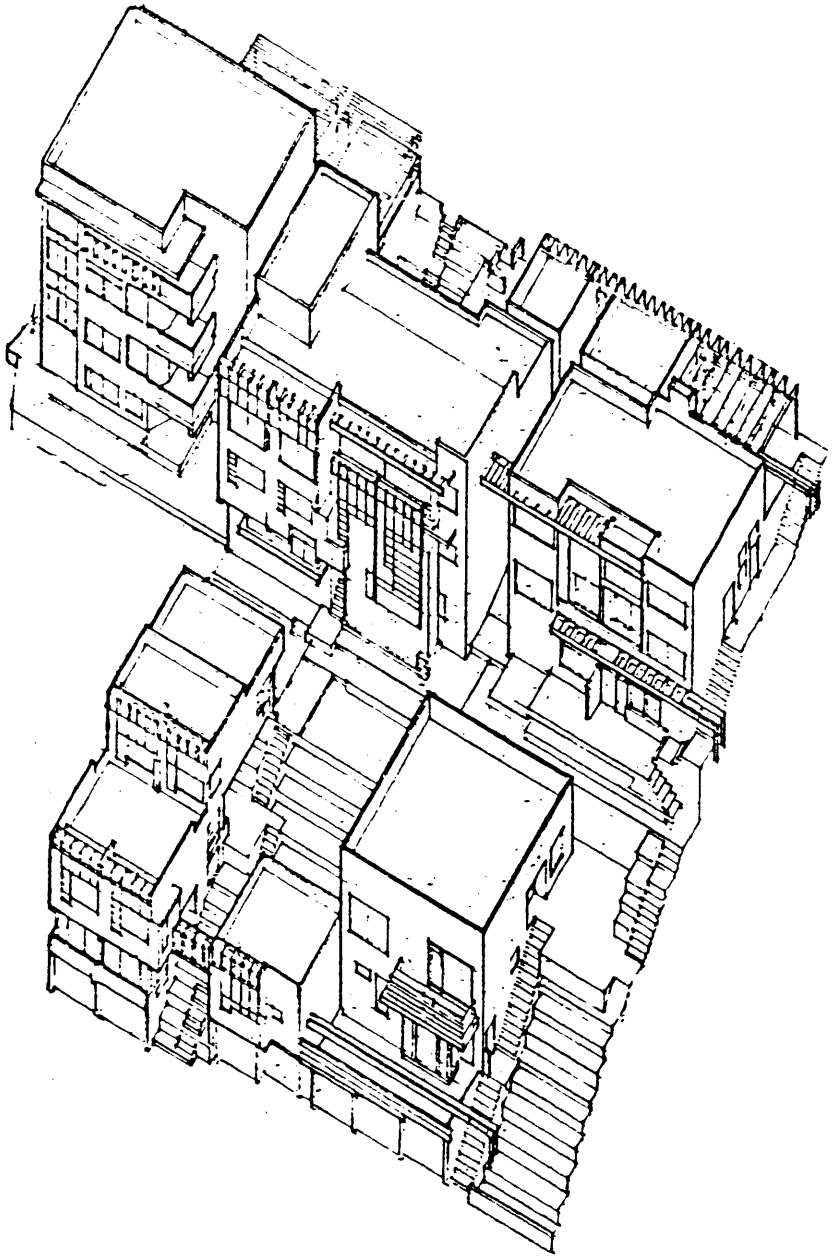


Fig. 28 Pathway at Radburn, NJ



Above: Fig. 29 Diagram of main pathway through Manola (Sachs) Apartments, by R.M. Schindler (Kanda, pg. 9)



Right: Fig. 30 Axon of Sachs Apartments
(Kanda, pg. 20)

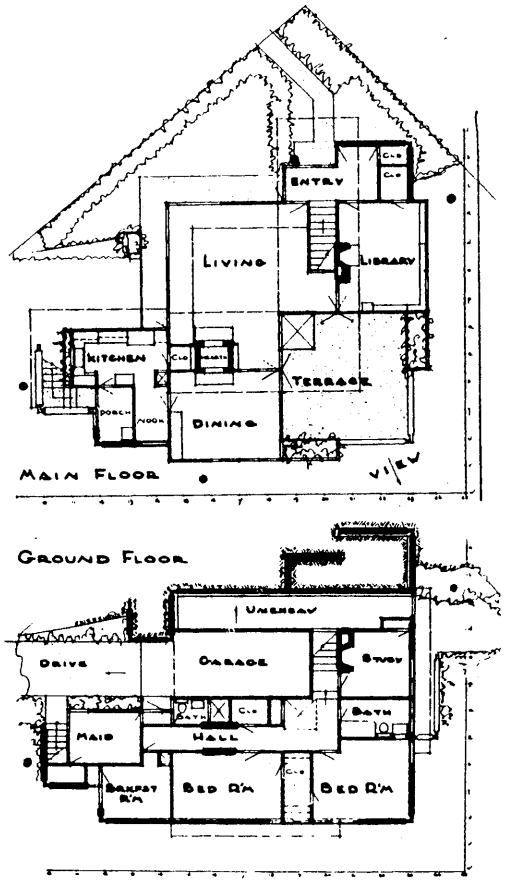


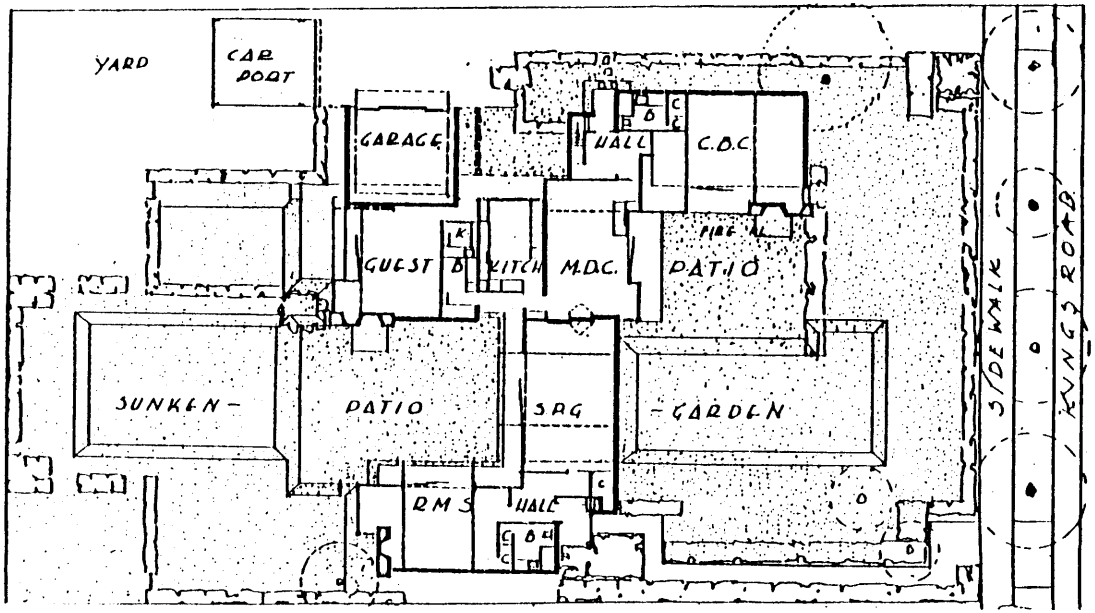
Fig. 31 James E. How house, by R.M. Schindler. (Sarnitz, pg. 87)

Fig. 32 Schindler/Chase Residence, by R.M. Schindler (Sarnitz, pg. 95)

Precedents

In seeking out examples of grouped housing, other than Radburn and Greenbelt that demonstrated a similar understanding of shared space, I was particularly influenced by the work of R. S. Schindler at the Sachs Apartments in southern California. The multiple pathways and nodes of activity and crossing create a satisfying sense of permeability, while setting up clearly perceptible thresholds to private areas. The sensitivity to individual dwelling siting combined with the overall coherence of the project were characteristics I tried to emulate in my project.

Schindler's house projects also informed the design of the house types I worked with to build my settlement pattern. The implied blurring of the edge between indoor and outdoors clearly builds in a continuity of privacy. Outdoor space is perceived as varying scales of outdoor rooms.



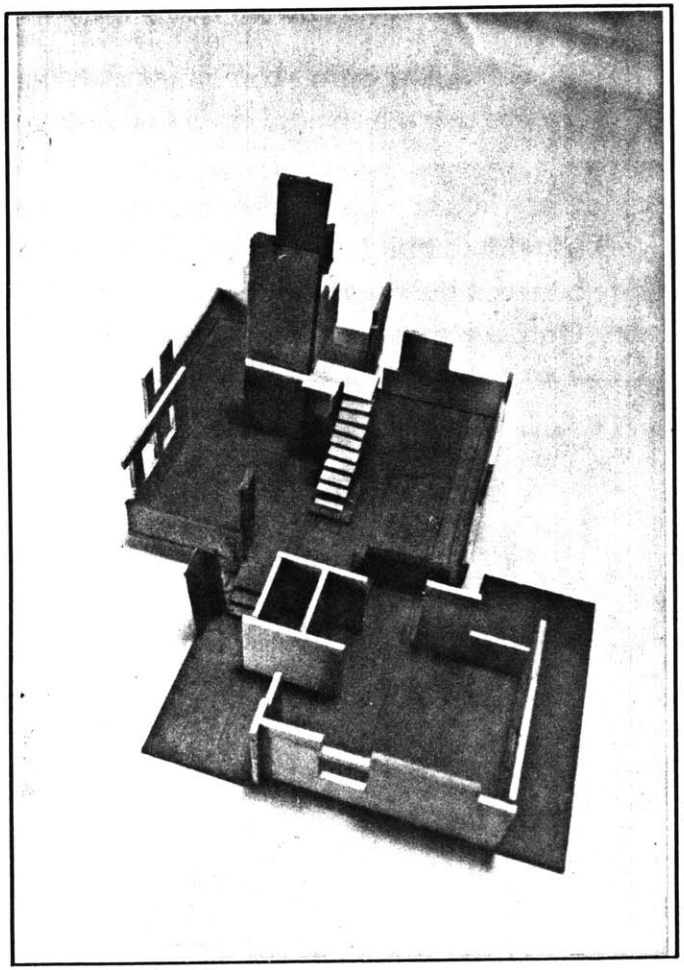


Fig. 33 Sketch model

Chapter 4:
The house design

Building shared spaces at the neighboring scale implies examination of the form of the house and its relationship, both internally and externally, to the collective environment. In many typical suburban developments:

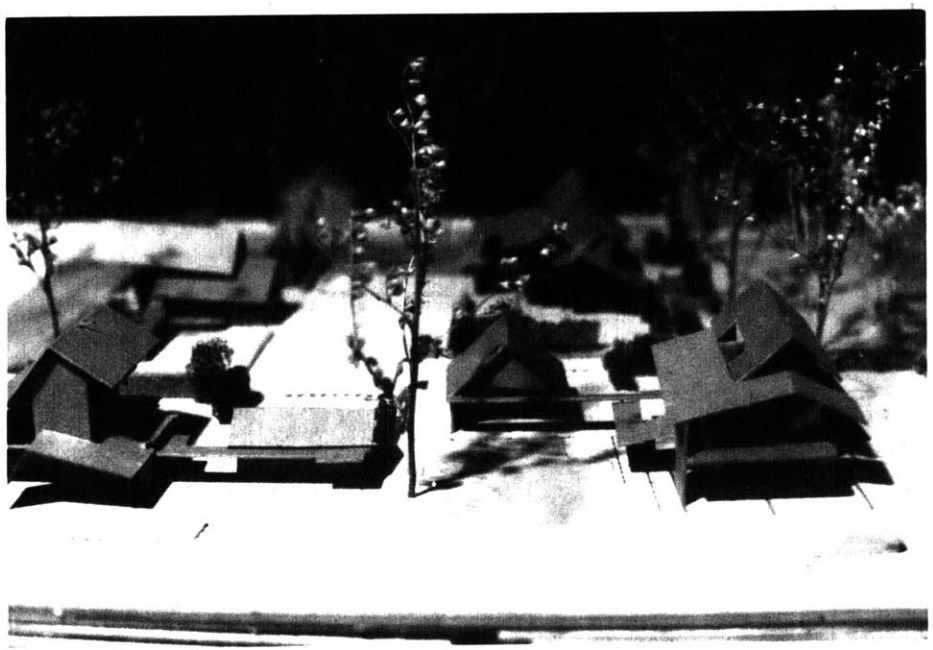
> "The house is a mass sitting on its site; the activities are organized within. Each dwelling is positioned like a machine, with a reasonable distance setting it apart so as not to interfere with the other's workings...The resulting shell-like organization of environments, characterized by functional organization inside and positioning of masses at the site level, is referred to as volumetric structure...[this] separates dwelling from site and reinforces a separation of dwellers from the context of the community"[9]

Transforming the settlement pattern requires transforming the houses to build space inside and out. The challenge is to design a type with a regular structure that has the capacity to accomodate the inevitable changes of lifestyle of the residents. The type must also have the flexibility to respond to individual siting differences, and to different conditions of neighboring (road, pathway, bikeway). At the same time (in keeping with my efforts to build connections and break apart enclave patterns) the type must respond to its context, through settlement pattern, massing, and form. The community identity that is built by groupings of this type must not overwhelm the groups' relationship to the surroundings.

9 Chow, Renee, Inquiry into American Housing: Designing for the Suburbs, Thresholds #5, MIT Dept. of Architecture publication, March 1993, pg. 4

Fig. 34 Car Connection. Note covered entry stair. (Alexander, pg 553)

Fig. 35 Model, showing relationship of covered walkway to garage and to shared driveway skirt.



House to lot relationship

In the houses I have designed, I have attempted to reintegrate the house into the individual site by creating outdoor private areas as extensions of the house. One critical feature of house design is the relationship to the car: the storage of cars is often, after the house, the second major element in organizing an individual lot. By manipulating the relationship of the car storage, I made a z-shaped arrangement that maximized at least two exterior privacy zones.

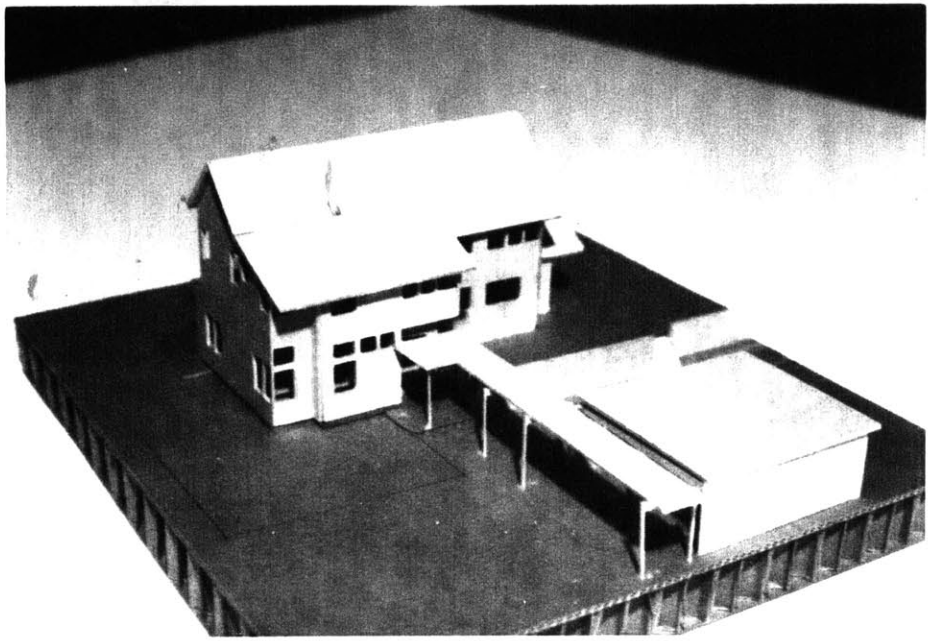


Fig. 36 Model of mid-size house

Fig. 37 Entrance Transition.
(Alexander, A Pattern Language, pg. 548)

Fig. 38 Model seen from "back", from garden and shared courtyard.

Given that entry to American houses is now tied to car arrival, the car-entry association must be improved, not deplored (as it is in the mews arrangement promoted by many "new urbanists"). By detaching the car storage from the house, but connecting it to the main entrance with a covered walkway, the walkway became a directional path to entry. It also screens the private area beyond. Further, I attempted to keep a second, kitchen entrance within the larger zone of entry and connection to the garage.

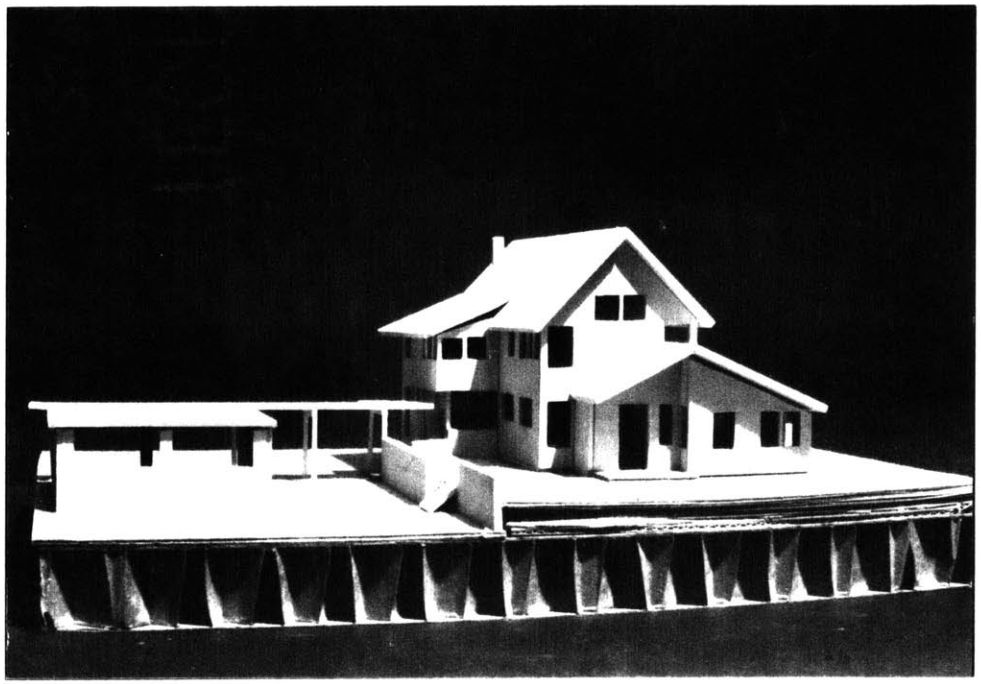
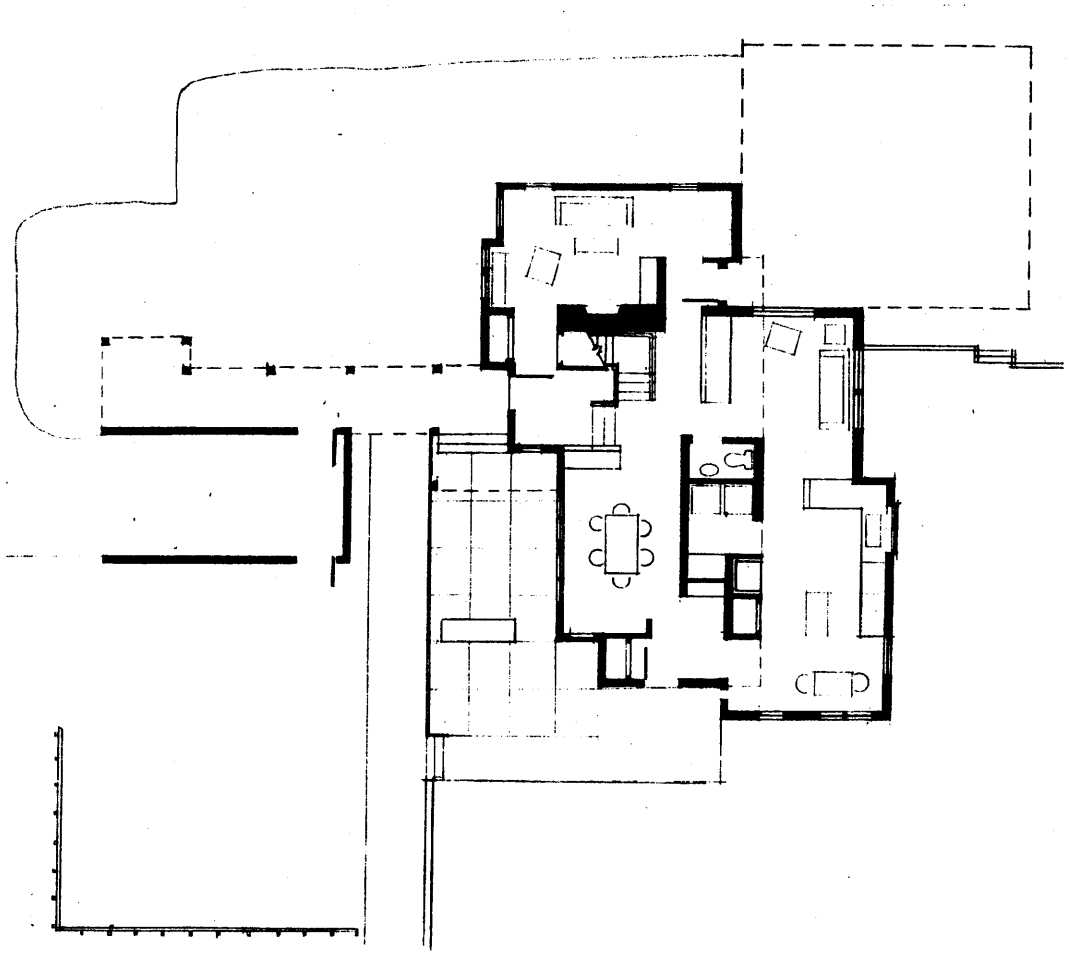
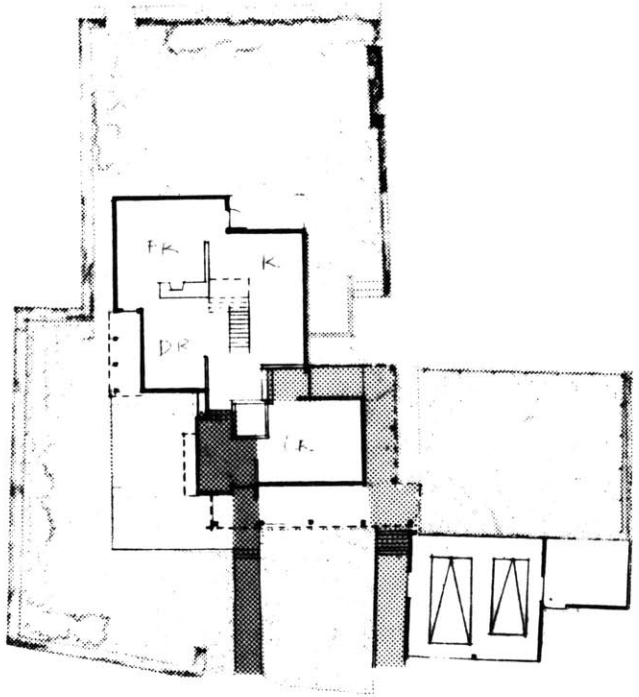
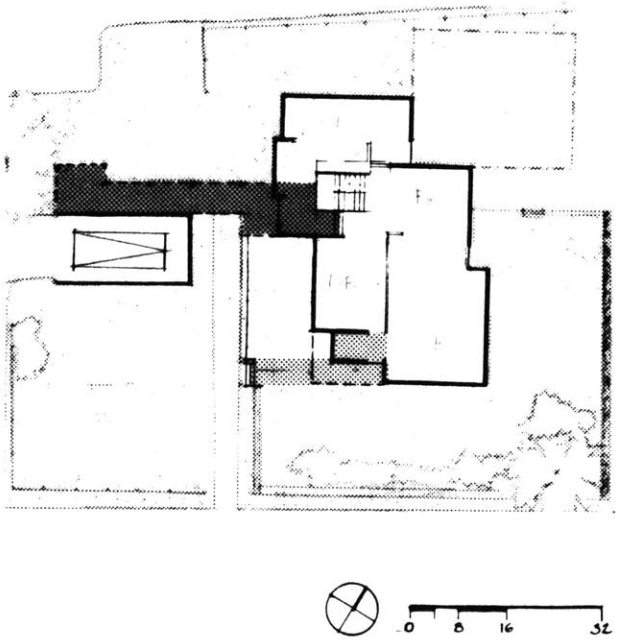


Fig. 39 Plan of Typical House, mid-size.





2300 sf house
Entry parallel to core circulation
Secondary entry as part of main
circulation path



1800 sf house
Entry perpendicular to core
circulation
Secondary entry as part of main
circulation path

Fig. 40 Similar massing organization, site specific floor plan and entry arrangement

Internal design

The proposed house type provides a variety of sizes and internal arrangements. There are 3 versions of the basic house form:

1) 1450 sf, with 2 rooms upstairs, 3 down
2) 1880 sf, with 2 rooms upstairs, 4 down
3) 2250 sf, with 3 rooms upstairs, 4 down

In the development I designed, there are 11 dwellings, with 3 each of the largest and smallest, and 5 of the mid-range, all distributed evenly across the site. Several of the units have potential for office space/in-law apartments designed into the plan.

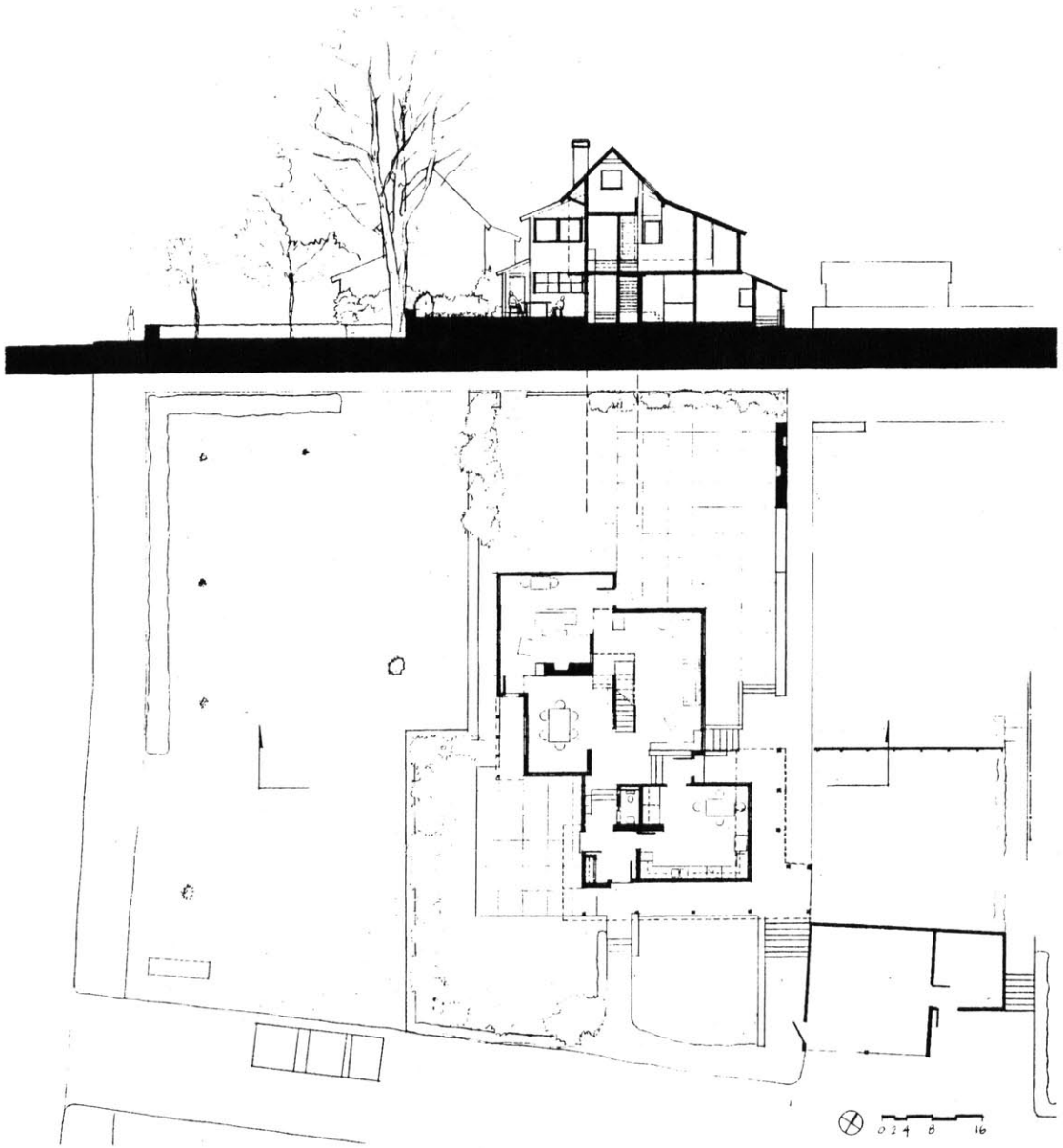
Each house is also designed with an organizational flexibility, so that, within the circulation plan, uses of rooms can be changed to adjust to site characteristics. Depending on the house location and solar orientation, with minimal redesign, the living room and kitchen can be switched. (I used this flexibility to create a south-facing, semi-enclosed outdoor space for sitting for each house.) This capacity for plan reorganization, and the internal structure that creates shared spaces at the intimate scale of the house, directly effects the organization of the houses in relation to each other.

Variation of type

This early version of the basic type was designed very specifically to its public site: there are shared spaces at different scales on each side. This house was useful in testing roof forms, floor plan variations and in testing privacies for many different conditions. The linear organization of the circulation plan gave me interesting opportunities to create a pathway with multiple exchanges (both in plan and in section) with the rooms adjacent.

Typical contemporary houses have a multiplicity of specialized rooms but little attention is paid to the transitions between the rooms. In the proposed design, passages are not just for access, but have occupiable spaces: window seats, desk corners, spaces for temporary privacy. Shared spaces are built at all scales.

Fig. 41 Cluster model, showing variation on type: Large house



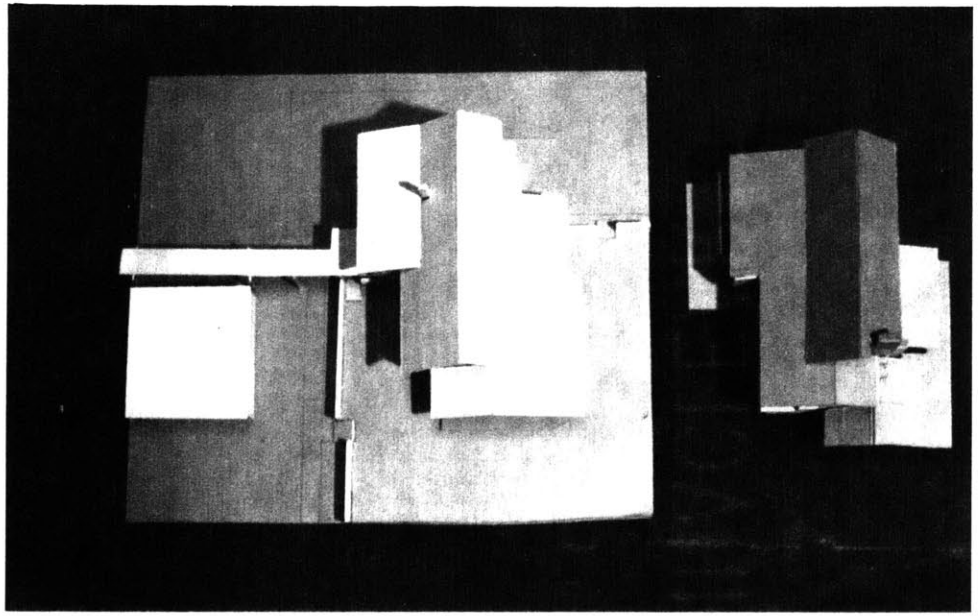


Fig. 42 Roof form comparison:
left - mid size house
right - large house

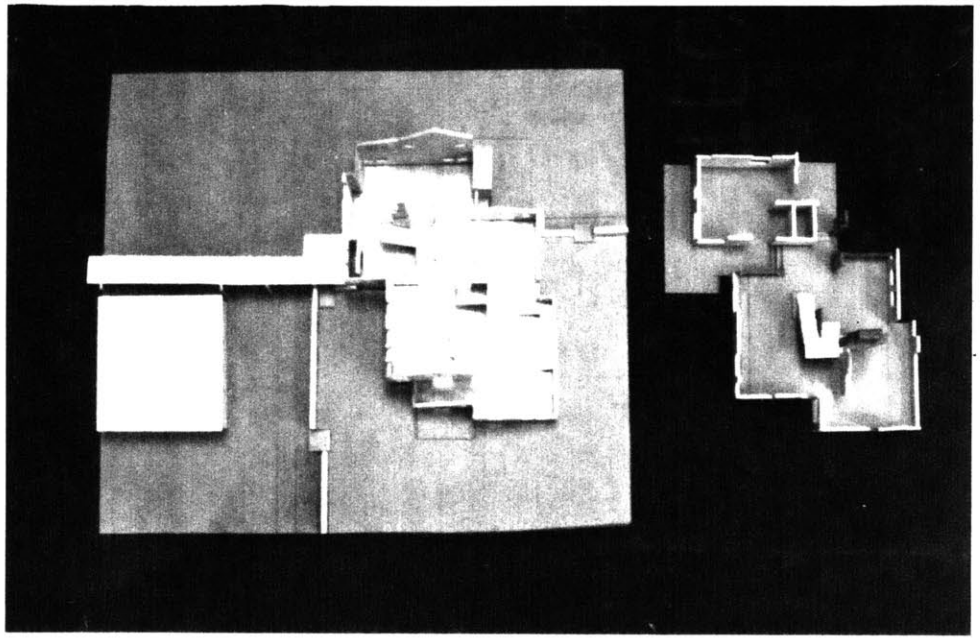
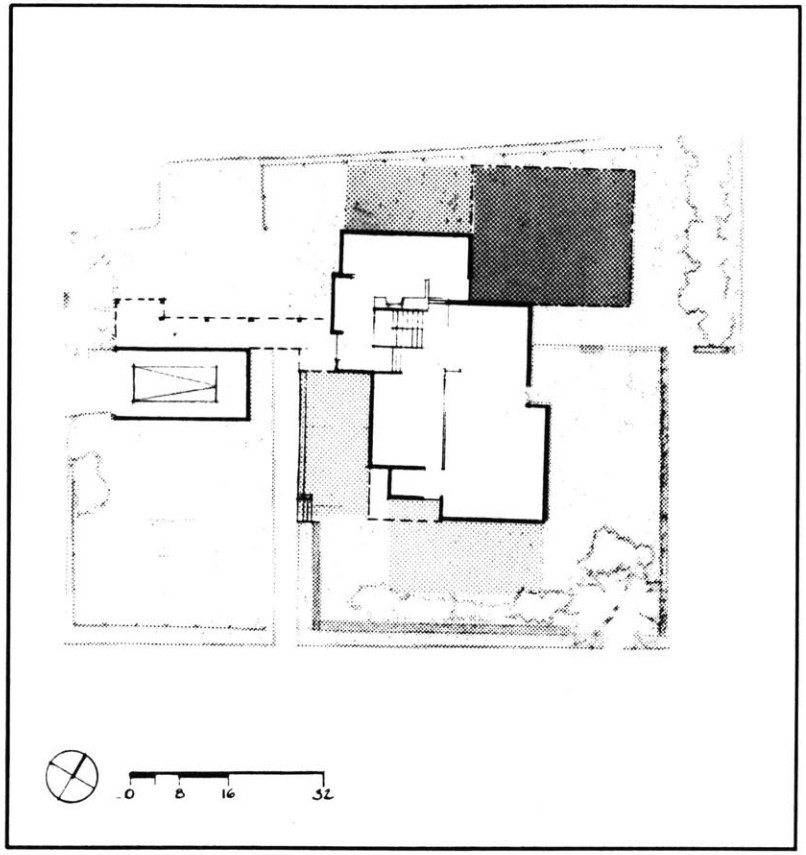
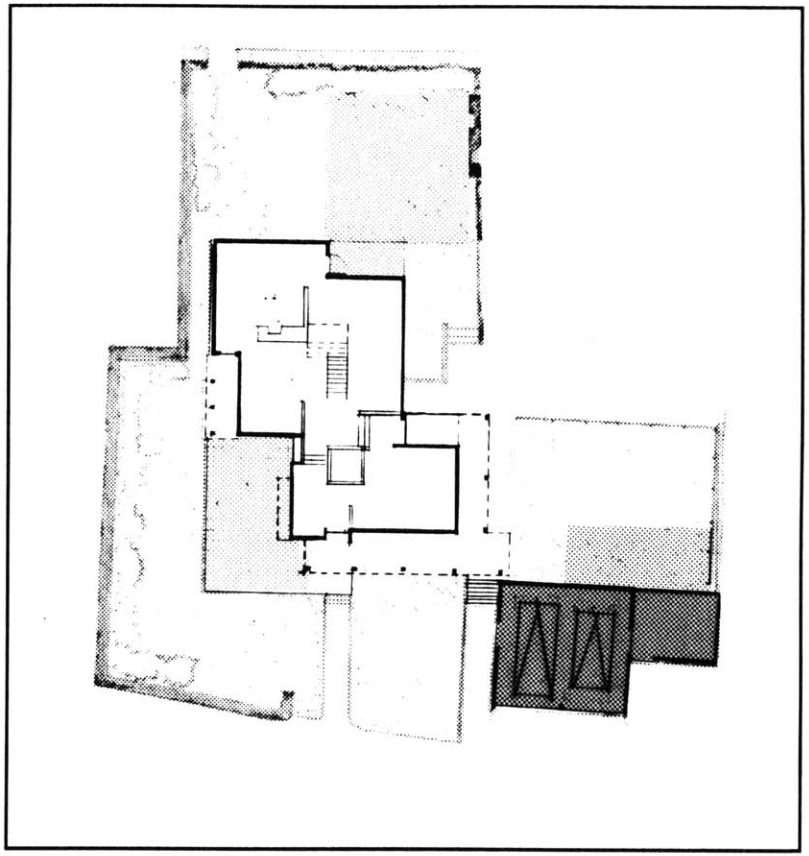


Fig. 43 Floor plan comparison:
left - mid size house
right - large house





Addition/in-law apartment/office

Privacy for addition

Privacy for house

Fig. 44 Capacity: potential for addition and extension

Chapter 5:
The Case Studies

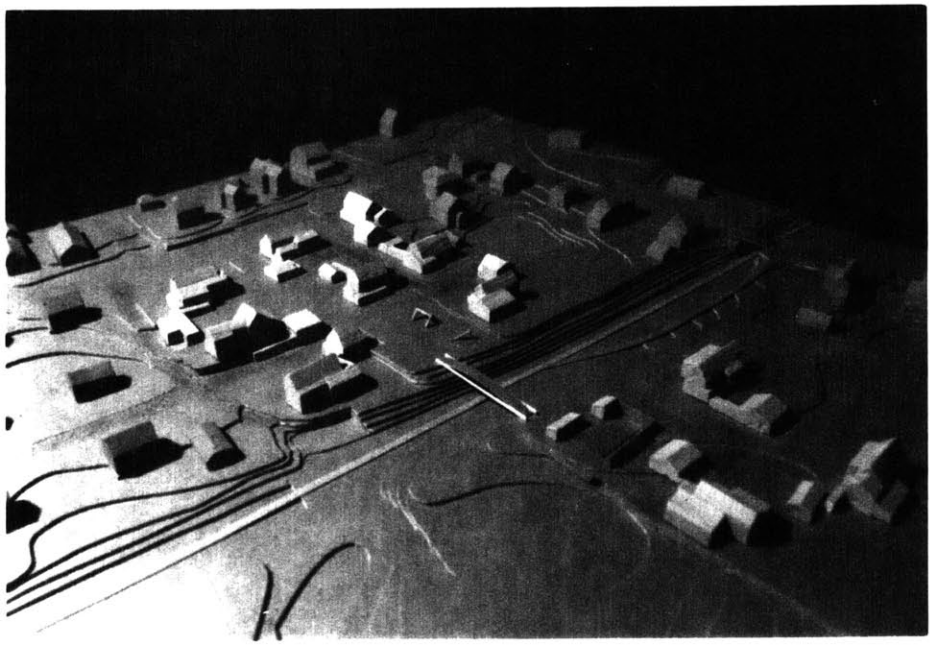
In addition to study of the historical development of suburban settlement patterns, developing a concept of shared space and civic presence in the suburbs required analysis of several settlement typologies. I examined four typologies, in addition to my own proposed type:

Cambridgeport, a section of Cambridge, MA
Largely developed in the late 1800's and early 1900's, pre-automobile, with gridded streets.

Radburn, NJ
Developed in the late 1920's, Garden City movement planned community by Henry Wright and Clarence Stein.

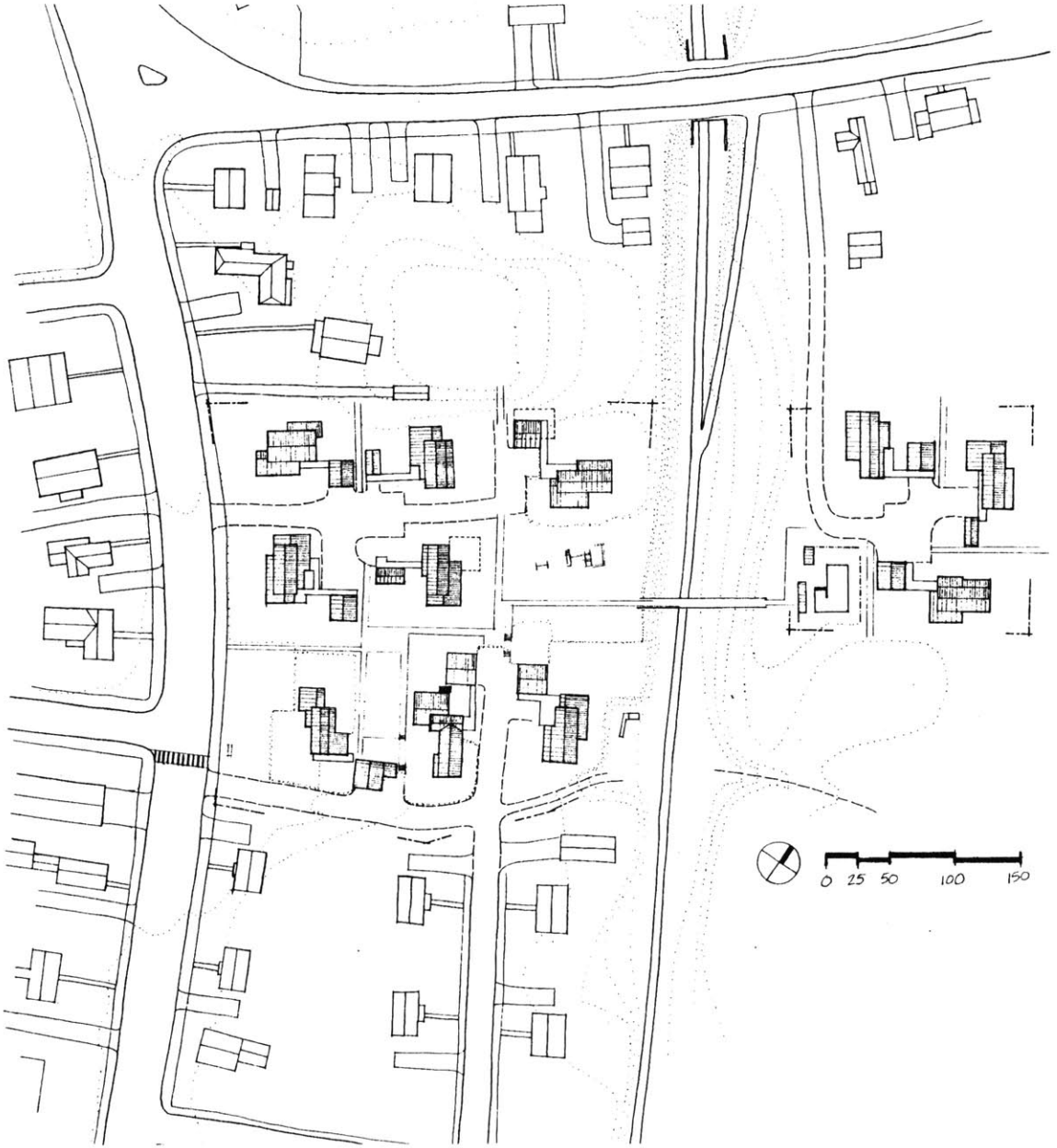
Five Fields development, in Lexington, MA
Modernist houses built in the late 1950's by The Architects' Collaborative, with common land and recreation facilities.

Kentlands, in Gaithersburg, MD
New urbanist community planned by Duany/Plater-Zyberk, built by developers, now in progress.



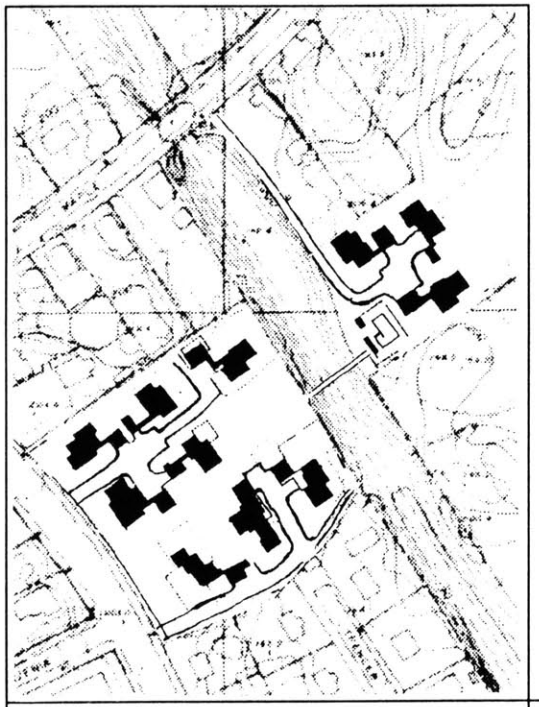
Proposed settlement transformation, Lexington, MA

Developed at a much smaller scale, the proposed settlement density is 3.5 du/acre. There are 11 houses, several of which have capacity for addition of an accessory unit. A pool and playground, and individual south-facing gardening sites are all provided. Individual houses have individual lots and car storage, with clearly defined shared pathways, roadways or open space adjacent. A pedestrian bridge links the two sides of the project, paralleling thepublic pathway between the bikeway and Massachusetts Ave.


0 25 50 100 150

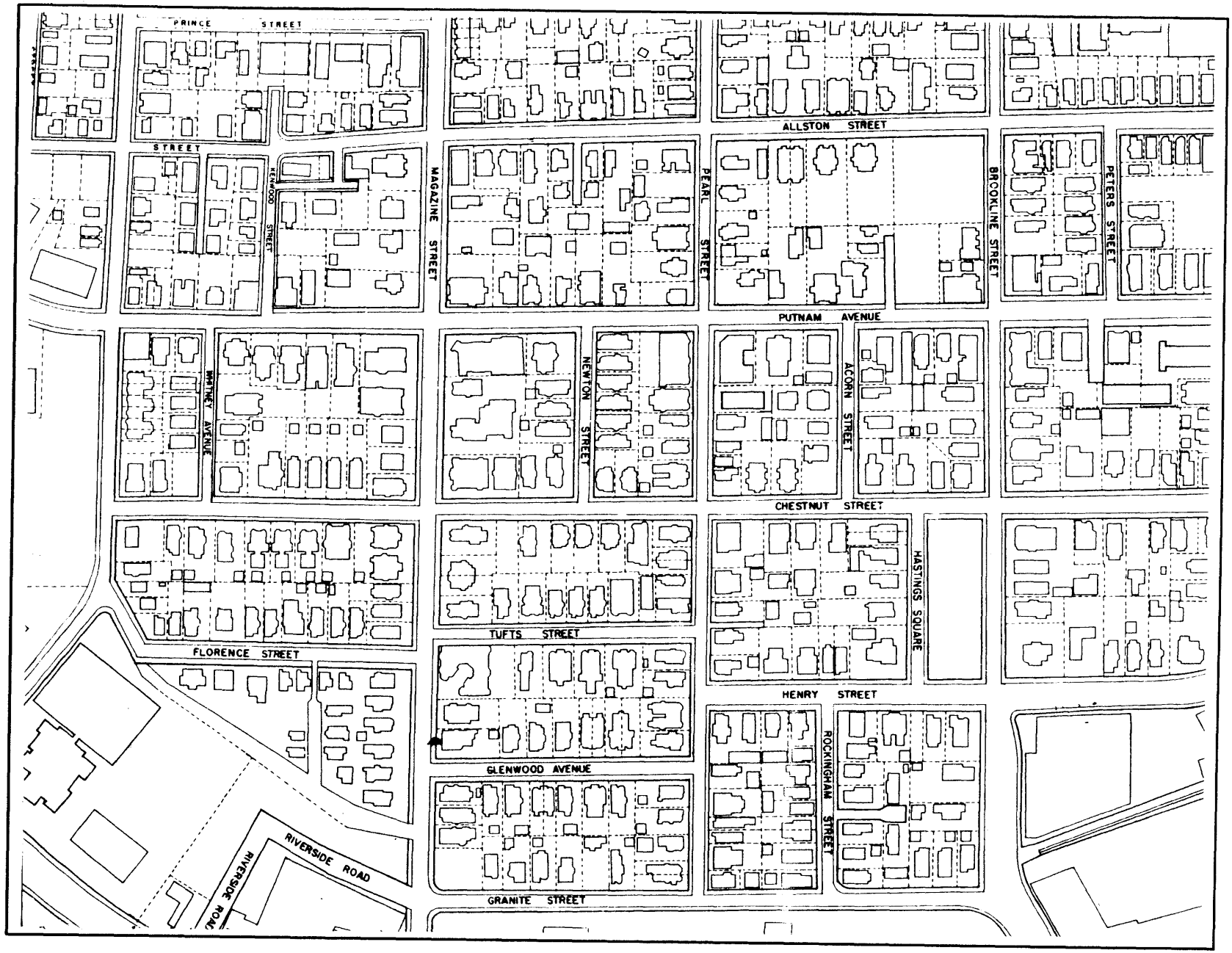
Cambridgeport

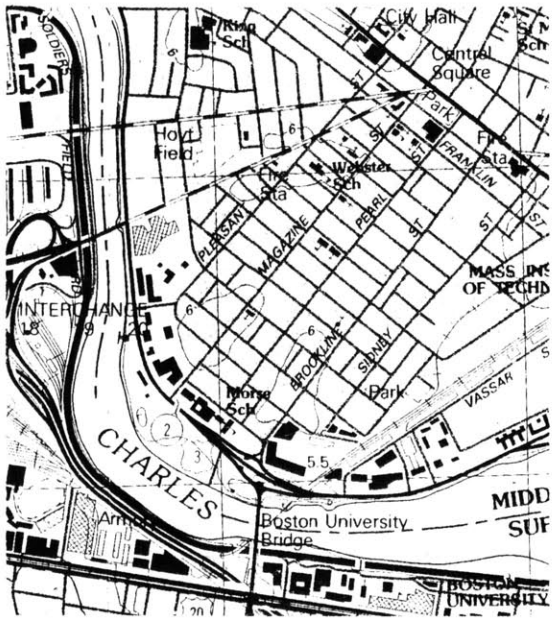
- High density: roughly 15 - 20 du/acre
- Basic grid plan, but with numerous one-block streets that permit, but discourage, through traffic. Quiet streets near very active zones.
- Street-front continuity, with porches and sidewalks. New urbanists are copying the image of this (especially at DPZ's Kentlands), but without recognizing the importance of the numerous corner stores, and the adjacency of Central Square and its public transit, in supporting pedestrian life.
- Now overburdened by contemporary car use: parking is competitive in some areas, some very small streets have become arterials.
- With more cars on streets, the limited public space off the street is more valuable: several one-block-scale tot lots have been built recently. Small open spaces provide relief in the dense fabric.
- Spaces between houses, while small, often support pleasant pathways.

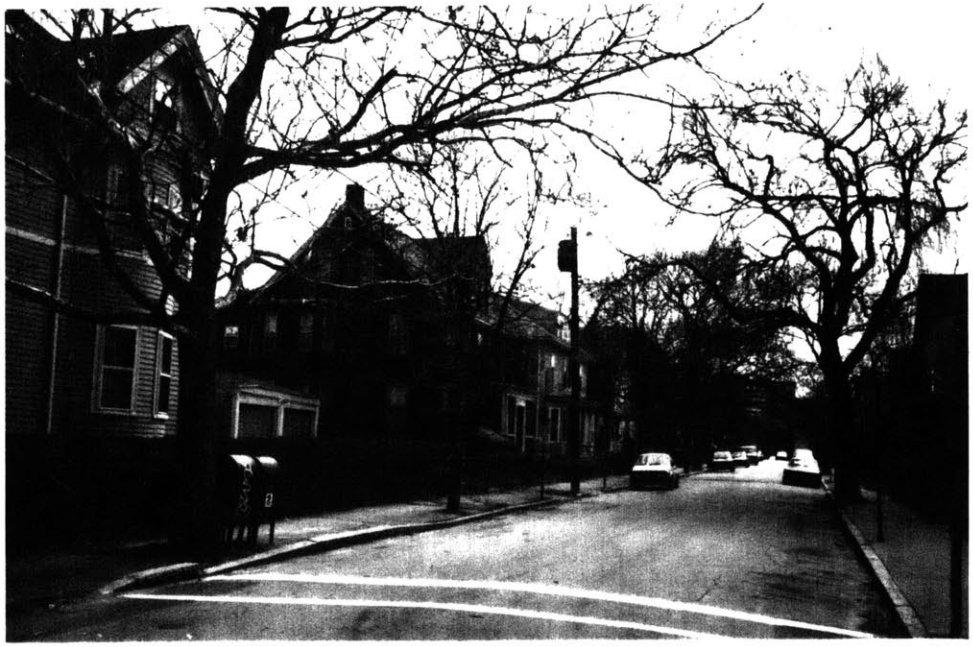


For comparison:
Proposed site 1" : 260'

Right: Cambridgeport 1" : 260'


PRINCE STREET
STREET
KENWOOD STREET
MAGAZINE STREET
PEARL STREET
ALLSTON STREET
BROOKLINE STREET
PETERS STREET
PUTNAM AVENUE
MATHEY AVENUE
NEWTON STREET
ACORN STREET
CHESTNUT STREET
TUFTS STREET
FLORENCE STREET
HASTINGS SQUARE
HENRY STREET
GLENWOOD AVENUE
ROCKINGHAM STREET
RIVERSIDE ROAD
RIVERSIDE ROAD
GRANITE STREET





Above: Fig. 45 Cambridgeport

Top: Fig. 46 Henry St. showing cars parked at mid-block entries, not on corner

Bottom: Fig. 47 Pearl St. A figural, but casual open space

- Orientation of front of corner houses (on one-block streets) toward the larger street sets clear hierarchy, also makes orientation along short street very clear. Spatial gateway at corners, made by corner houses. Mid-block houses face each other, driveway access interlaces discrete group of houses. Cars parked in front of houses indicates regular front-door use, also slows traffic.

Fig. 48 Diagram noting one-block streets and mid-block interlacing of access. Also shows density and back lot houses.

Radburn

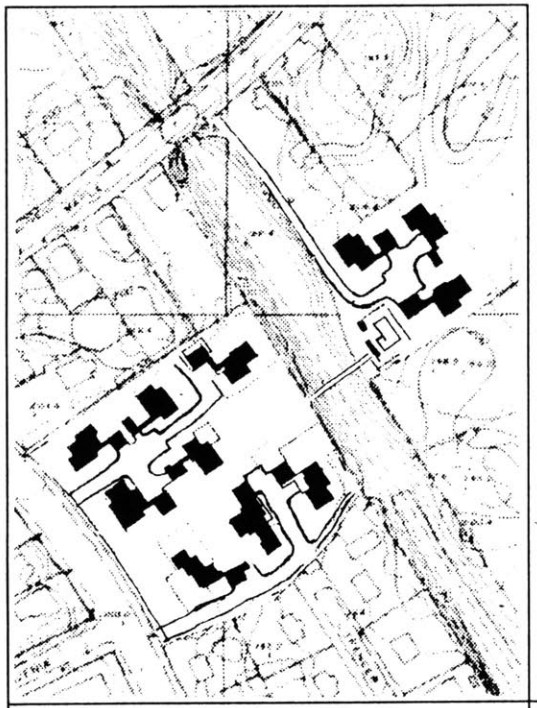
- Localized high density: roughly 7 - 8 du/acre overall, not including common

- Permeable quality of development, due to semi-public pathways and allees from street domain to ample shared space. The common land is not closed off from the public realm, especially at the school edge, where it borders typical suburbia. Acts as a civic opening to the world beyond (that might not have been as explicit had the school been at the center of four similar quadrants, as originally planned).

- Criticism of superblock: pedestrians use the streets also, but there are no sidewalks along streets.

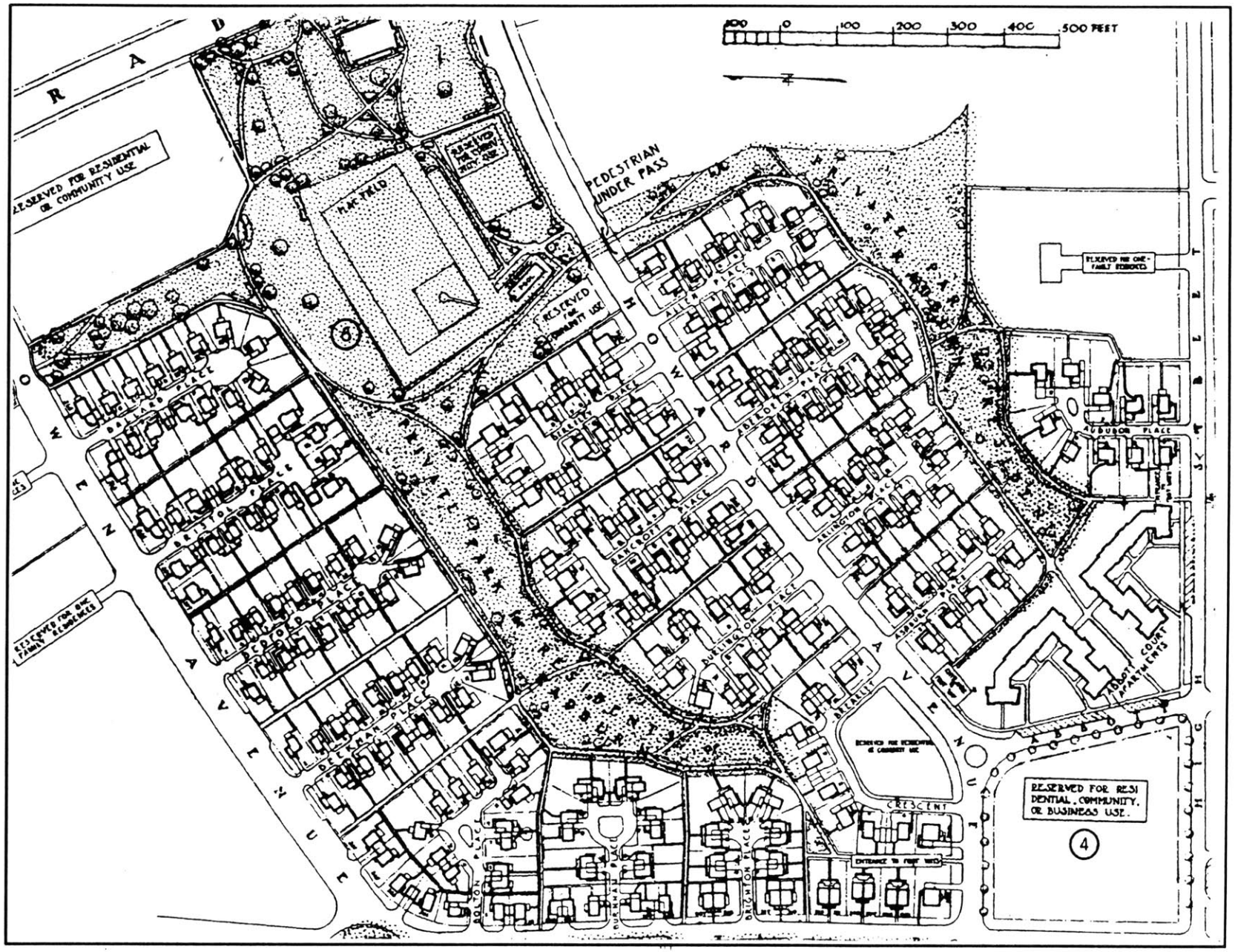
- Pairs of houses which create spatial gateways for the walkways (by their proximity across the path) typically have unkempt yards: yards provide too little privacy, and are thus treated as waste space.

- Much ambiguity about service vs. formal sides. Front yards now have back yard uses and this dilutes suburban conformity of tidy front/ messy back yard.



For comparison:
Proposed site 1" : 260'

Right: Radburn NJ 1" : 260'


0 100 200 300 400 500 FEET
PEDESTRIAN UNDER PASS
PLAY FIELD
RESERVED FOR RESIDENTIAL OR COMMUNITY USE
RESERVED FOR ONE-FAMILY RESIDENCES
RESERVED FOR RESIDENTIAL, COMMUNITY, OR BUSINESS USE.
4
CRESCENT
AUDUBON PLACE
TOLOTT COURT APARTMENTS

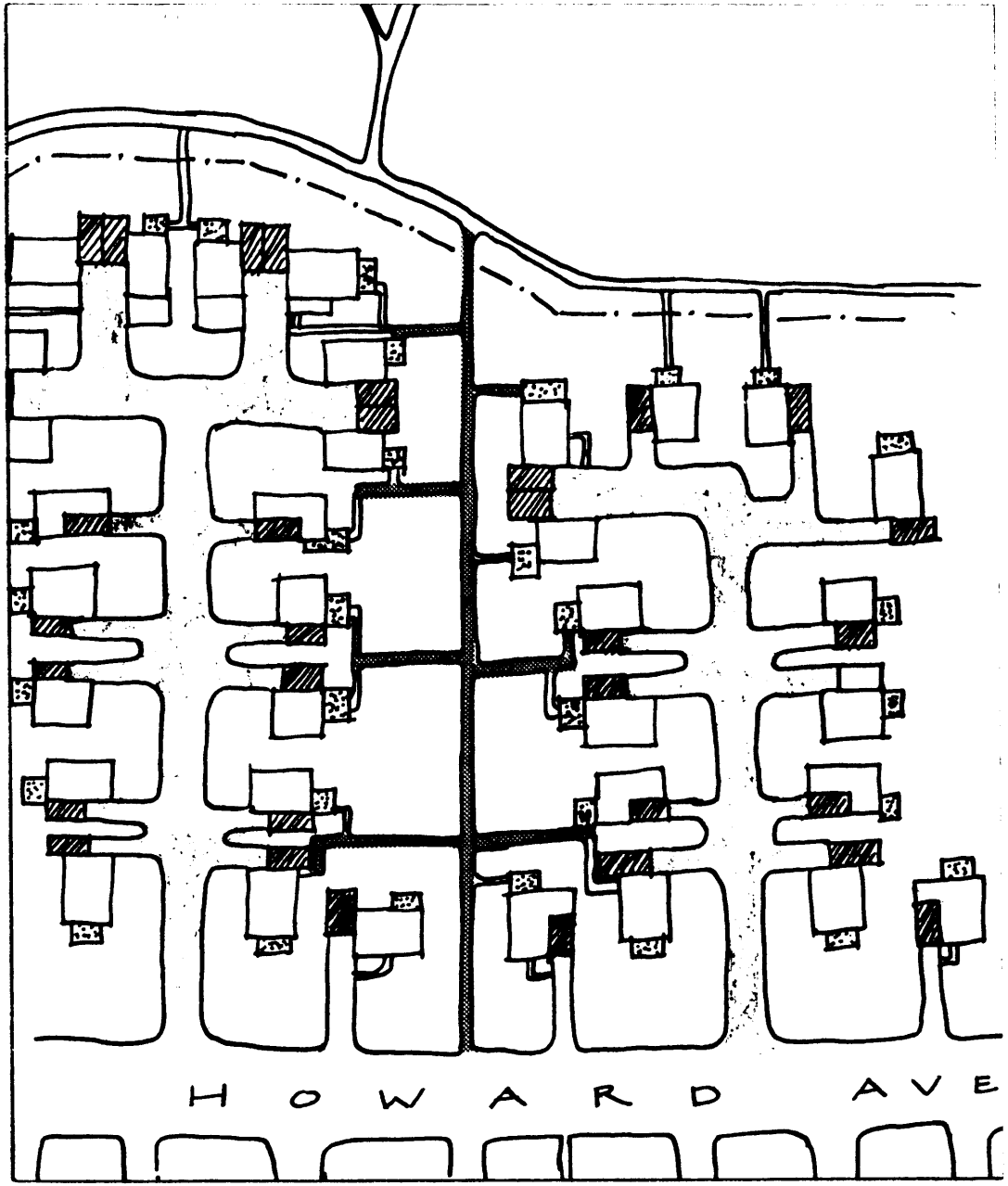


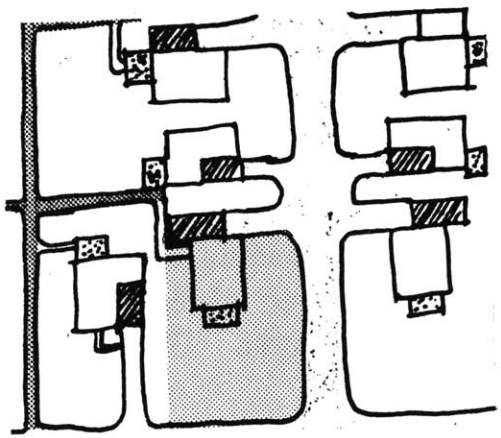
Fig. 49 Pathway/cul-de-sac system at Radburn: note absence of sidewalks on streets. Porches are small added-on boxes, making "front" edge to pathways.

- Outdoor "rooms" created by groupings of houses along pathways. Some evidence of adjoining neighbor cooperation to make small-scale open space across several yards, but still protected by hedges and fences from semi-public pathway.

- Corner lots have ample land on plan, but very little privacy in reality. However, these corner houses have better light than some of the closely packed houses at the head of the cul-de-sac: this is a problem of dense deployment of largely identical house plans.

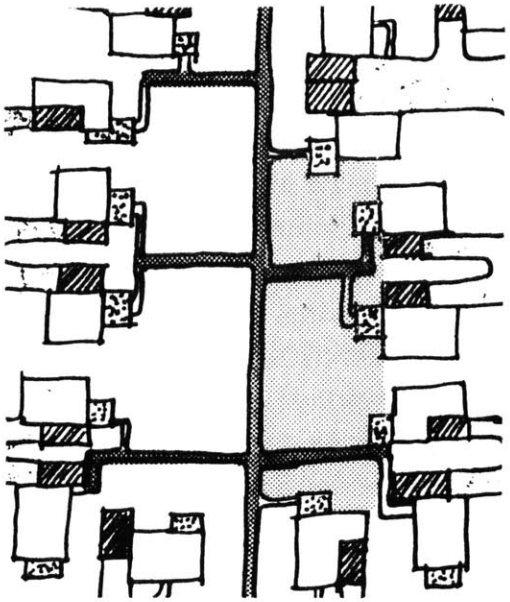
- Impact of contemporary standards is evident: much pressure for more car storage, more living space inside. Garages often converted to other uses so cars are parked in driveway, some duplex houses are now singles (and still look like small houses).

Fig. 50 Overgrown pathway edges, also, clear sense of destination



Above: Fig. 51 Corner lot with appearance of spaciousness, but with no real privacy outside.

Right: Fig. 52 Front/ back ambiguity: grill in "back", on service side. Indicates territorial claim to social space.

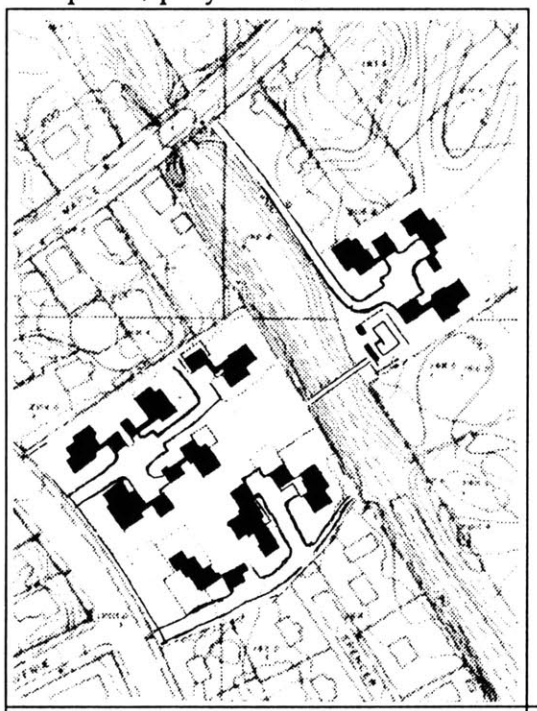


Above: Fig: 53 Radburn, location of residential cooperative building of 3 lot long joint playspac.e

Right: Fig. 54 Radburn, pathway and individual presence.

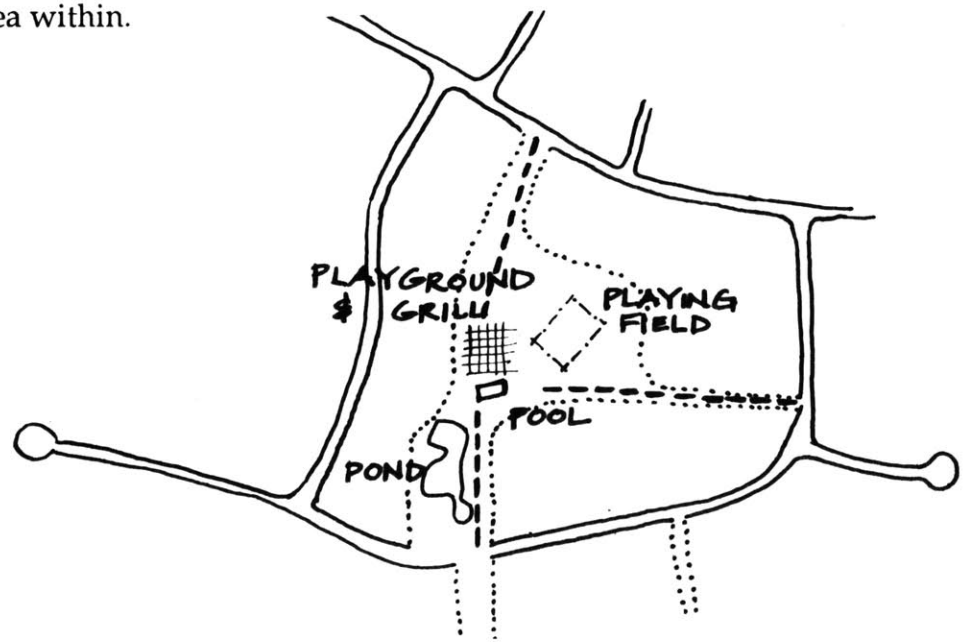
Five Fields

- Low density, 1.2 du/acre, including common
- Unusual post-war super block, with houses making edge to delightful central hillside and field, but no facilities other than recreational (pool, playground, pond, playfields)

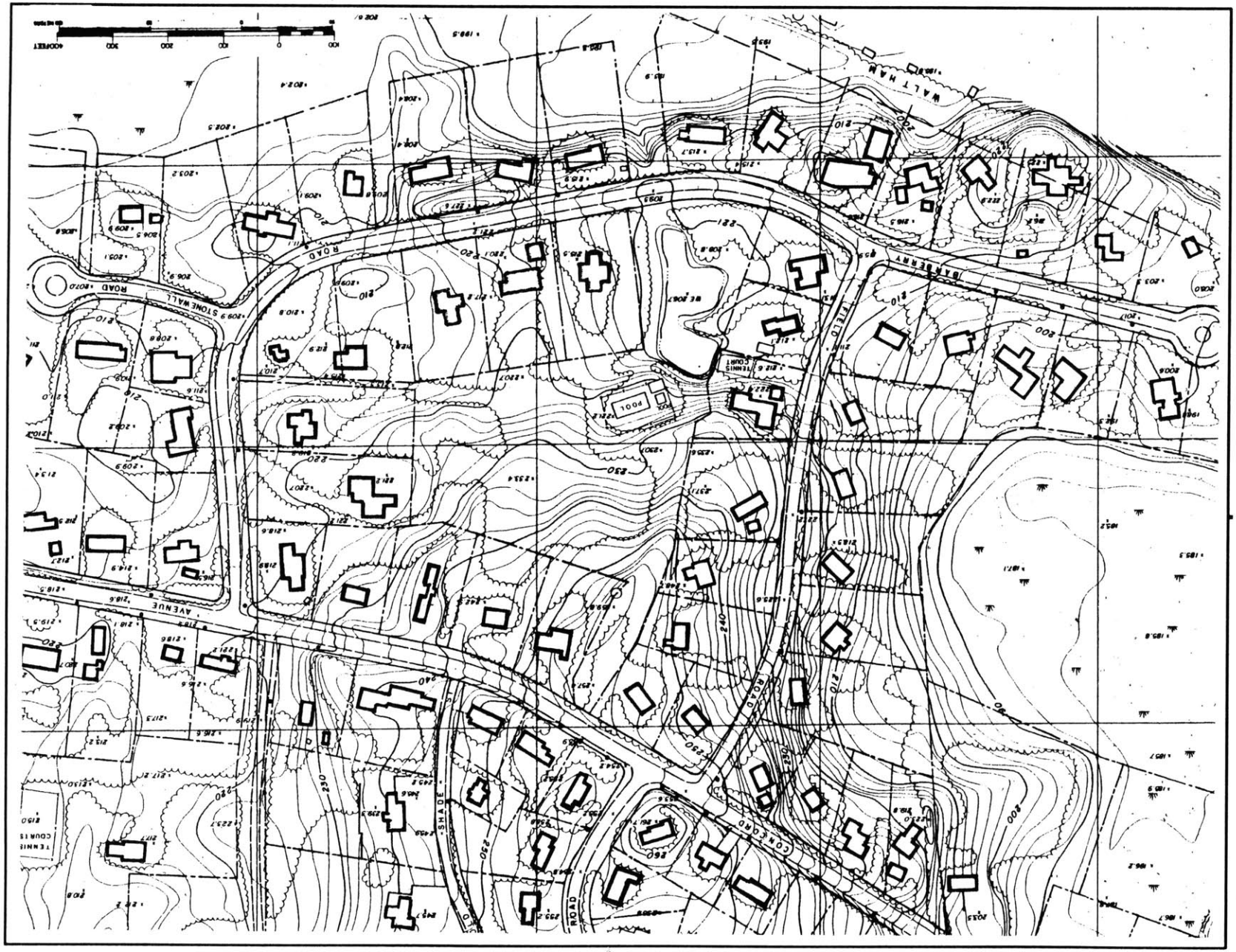


For comparison:
Proposed site 1" : 260'

- Isolation from rest of town helps preserve naturalism of common. Minimal relationship to a development that is directly abutting, but has a separate, distant entry from the collector road. What could be a reasonable walk to shopping center is a long way 'round by car
- Houses are modernist, open-plan, and view-reaching. Privacy made not by walls, but through ample lots and adroit landscaping.
- Location of civic identity: most public feature (pond) at perimeter, pool and playground within, providing safe play area requiring minimal supervision. Civic presence as part of edge of development, private area within.



Right: Five Fields, Lexington, MA 1" : 260'


STONE WALL ROAD
AVENUE
ROAD
ROAD
ROAD
ROAD
TENNIS COURT
TENNIS COURTS
1004

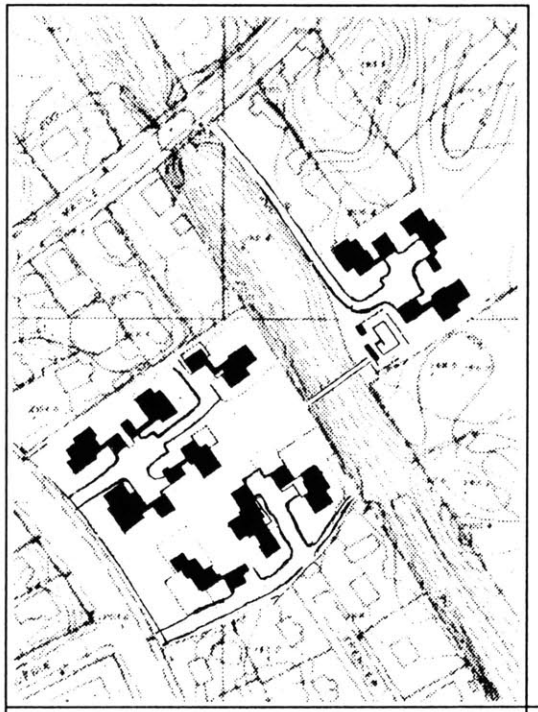
Kentlands

- Density varies, in keeping with mixed-use stance. In the part I studied carefully, density of roughly 7 du/acre.

- Started in 1990, about 2/3 of the housing is complete. There is no sign yet of the small main street shopping district but the large regional-scale shopping center is bustling. The one other planned commercial presence, a small convenience store near the school, is not there yet. Even if these were all in place, the "five minute walk" rule has been broken: there are not nearly enough stores sprinkled throughout. Tacitly, car dependence is encouraged.

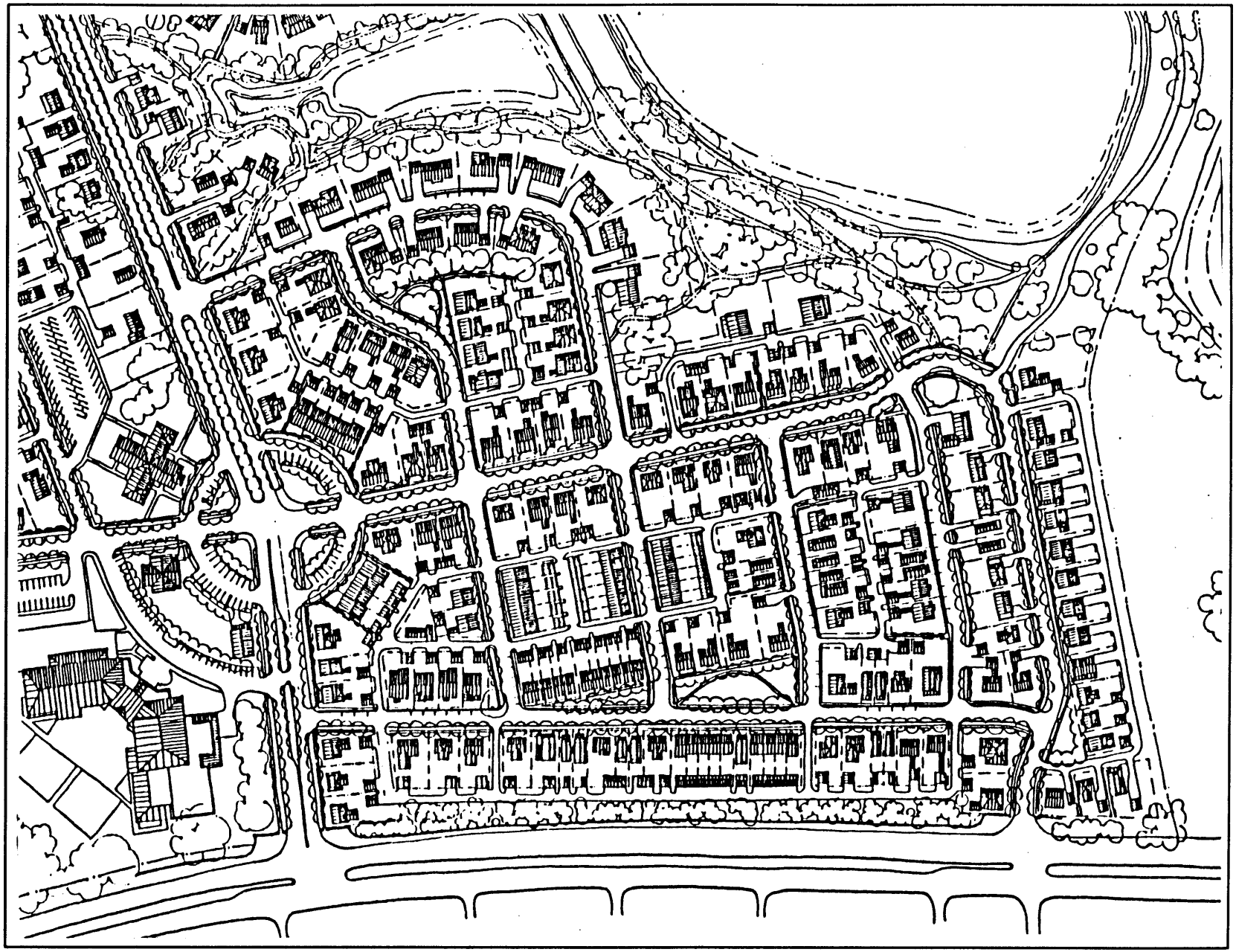
- Only one pool and playground (except at the school) for the entire 350 acre development. Minimal programming: people will still drive to get to the "recreation center".

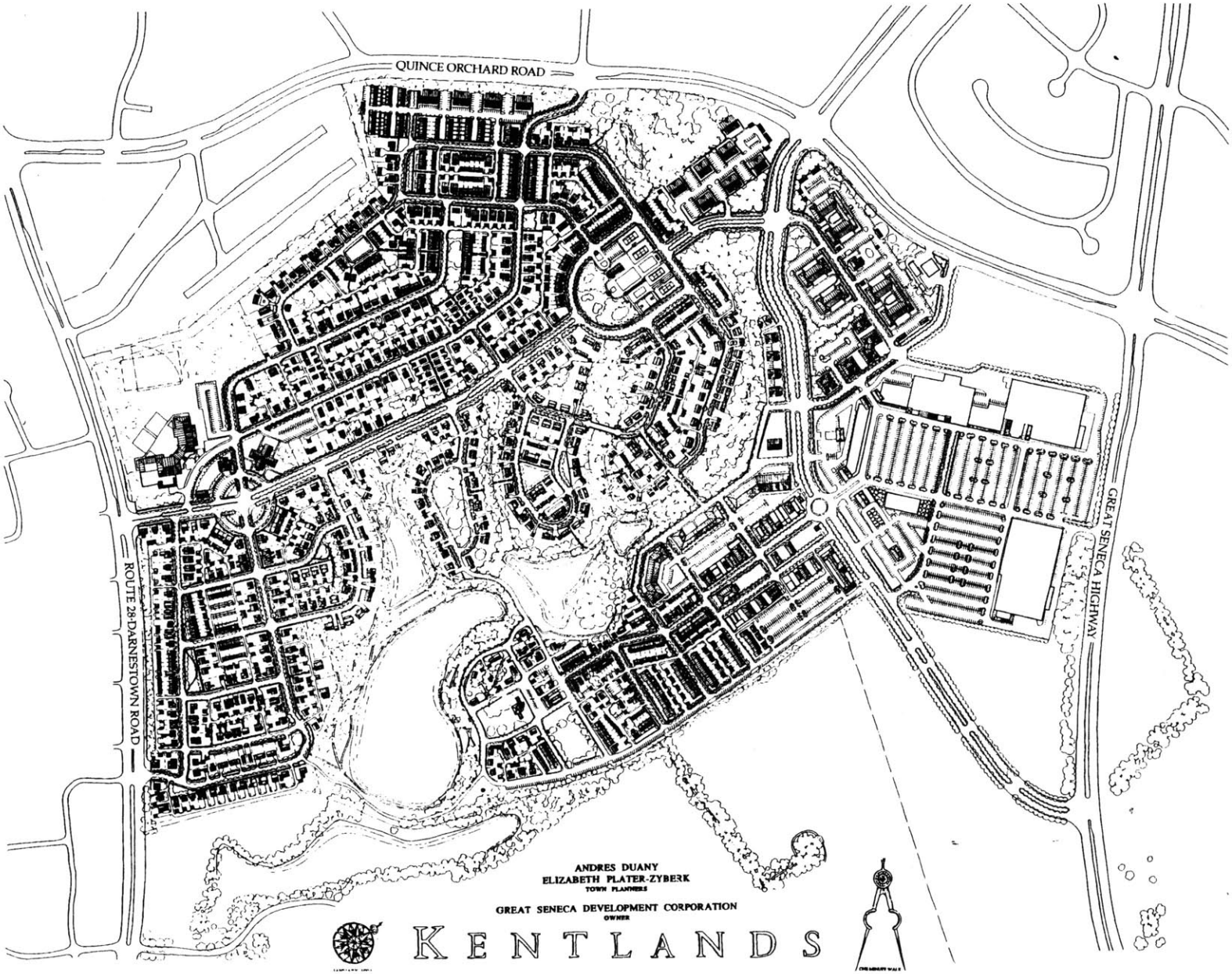
- "Greenbelt," if minimal in some places, surrounds development giving clear perception of enclave attitude. Perceived from collector road as similar to all other large cluster developments.



For comparison:
Proposed site 1" : 260'

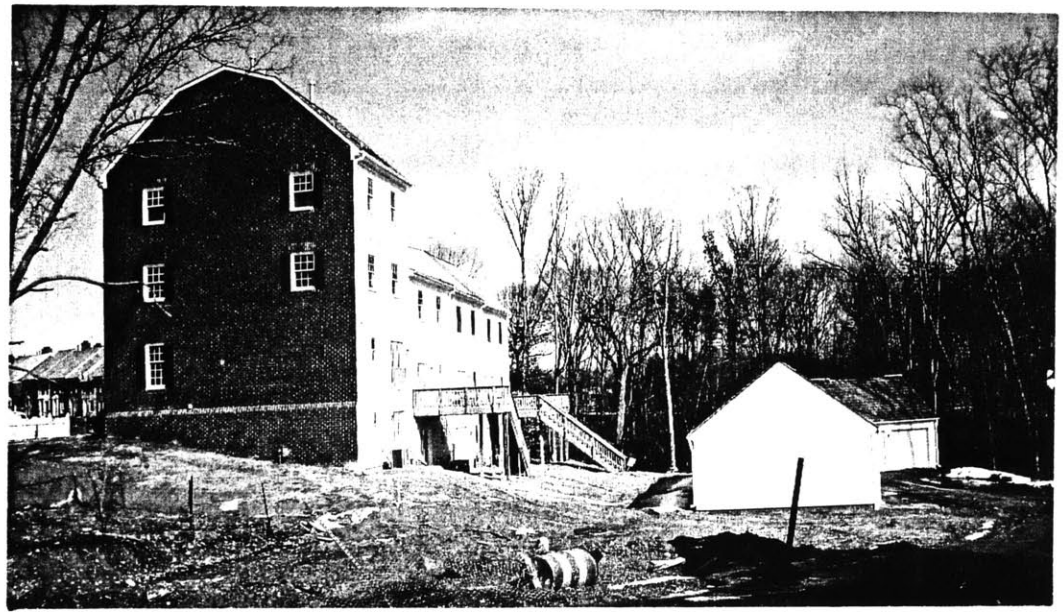
Right: Kentlands, MD 1" : 260'




QUINCE ORCHARD ROAD
ROUTE 28-DARNESTOWN ROAD
GREAT SENECA HIGHWAY
ANDRES DUANY
ELIZABETH PLATER-ZYBERK
TOWN PLANNERS
GREAT SENECA DEVELOPMENT CORPORATION
OWNER
KENTLANDS

- Plan of site is reasonably convincing until one visits: points out difficulty of forcing a formal plan to respect topography. House styles and groupings recall small-town and urban characteristics but are deployed with inadequate regard for siting. Porches wrap around the wrong side, the street wall is maintained at the expense of connection to the ground.

Left: Fig. 55 Kentlands Plan, 1": 600', Duany/Plater-Zyberk. Note retail shopping center and main street area. Main St.is not built yet, residents drive to shopping center.



Right: Fig. 56 Formal plan encounters topography. The backyard in plan becomes unuseable catwalks in reality. Also evident: rowhouse as deployed object, not fabric.

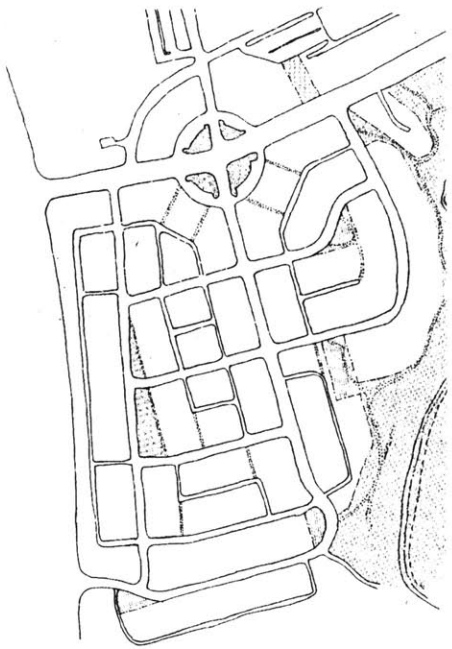
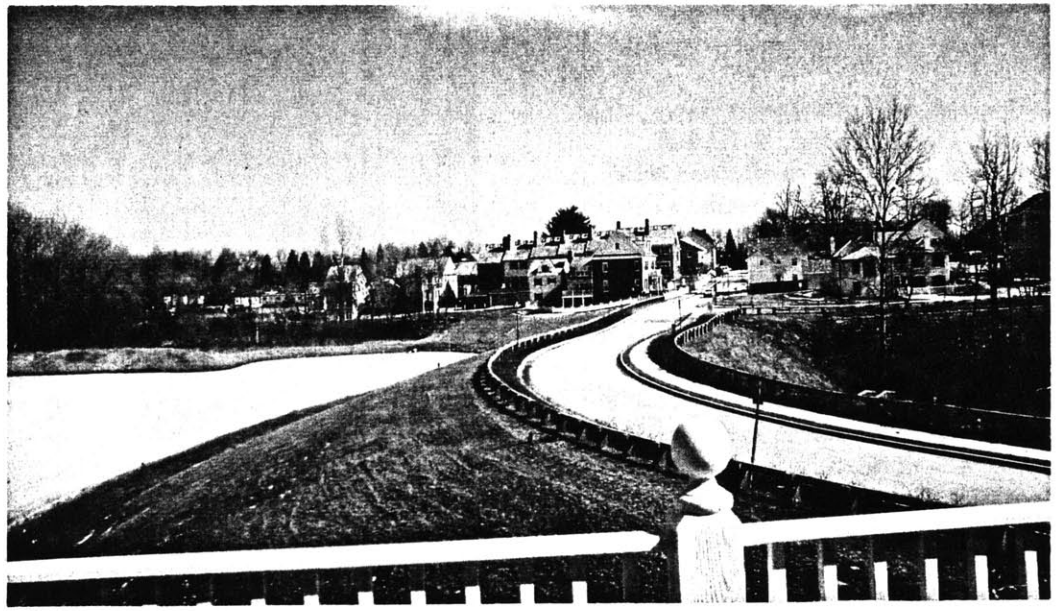


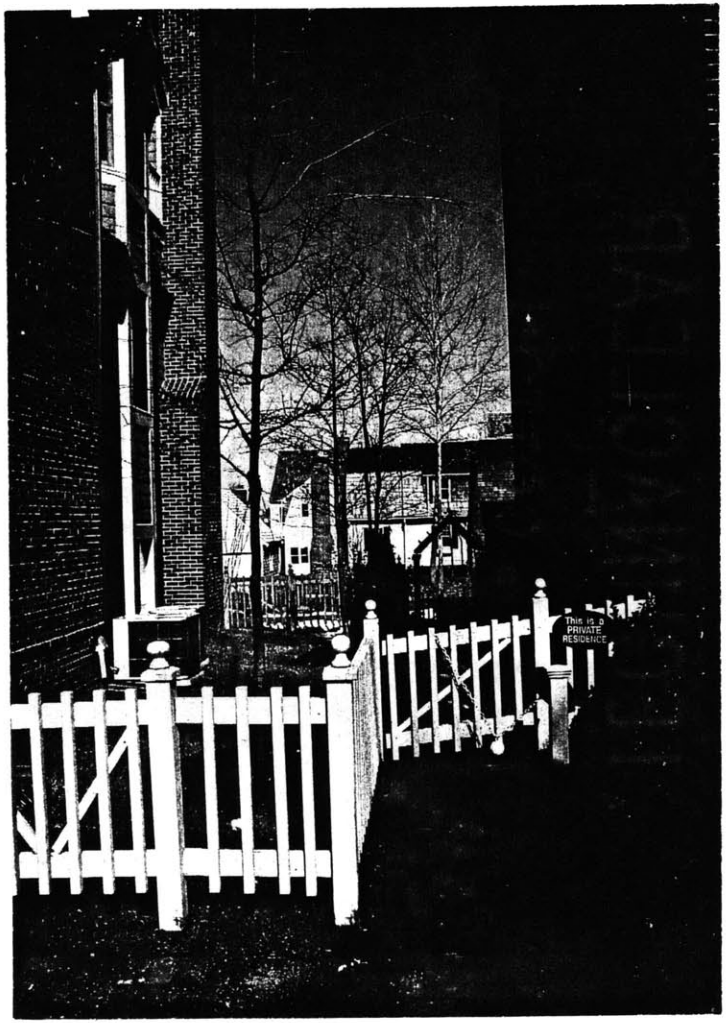
Fig. 57 Diagram of streets, mews and open space. Open space appears as space left-over.

Fig. 58 View of highway-style causeway: no connection between street world and nature.

- Pedestrian life not consistently supported: pathways appear as after-thoughts in street-driven plan. Thus, developers have not felt need to complete many pedestrian links: sidewalks end abruptly, roadway between lakes has guardrails that prevent any connections between car-free areas.

- Civic spaces are ruled by cars: at the logical place for a town green, where church and school and row houses define a (too loose) circle, two roads cross, destroying the scale and sense of enclosure.

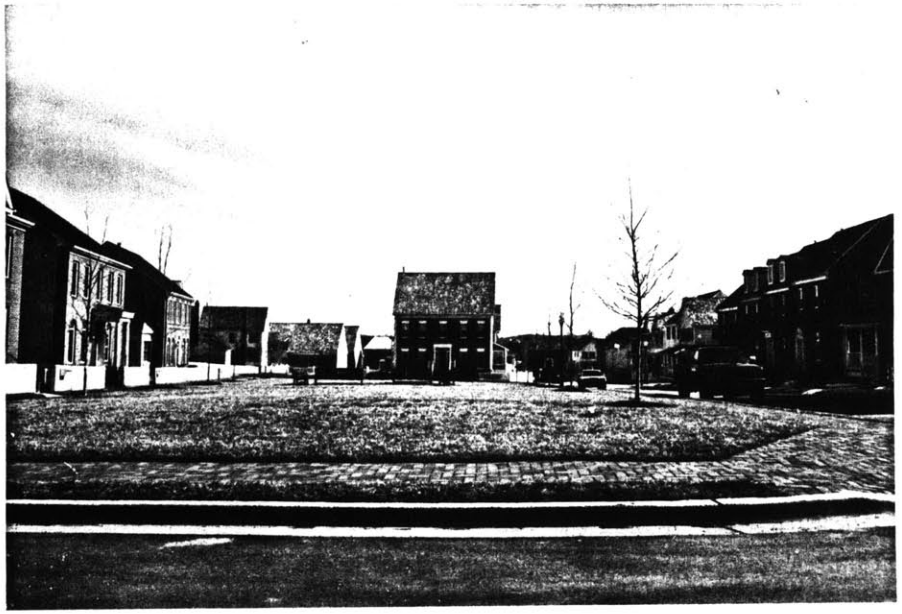


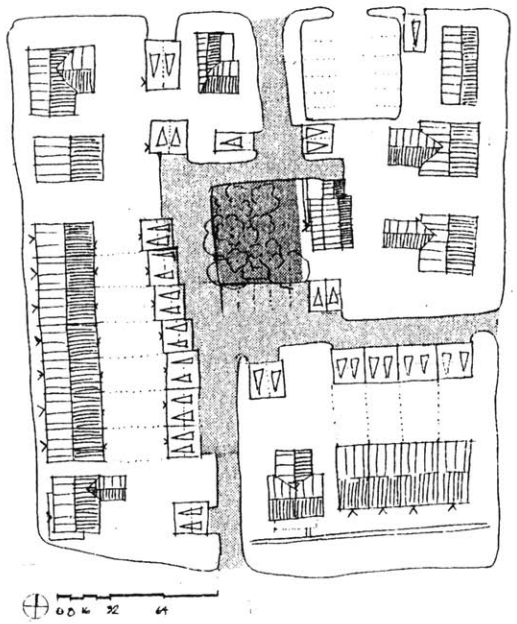


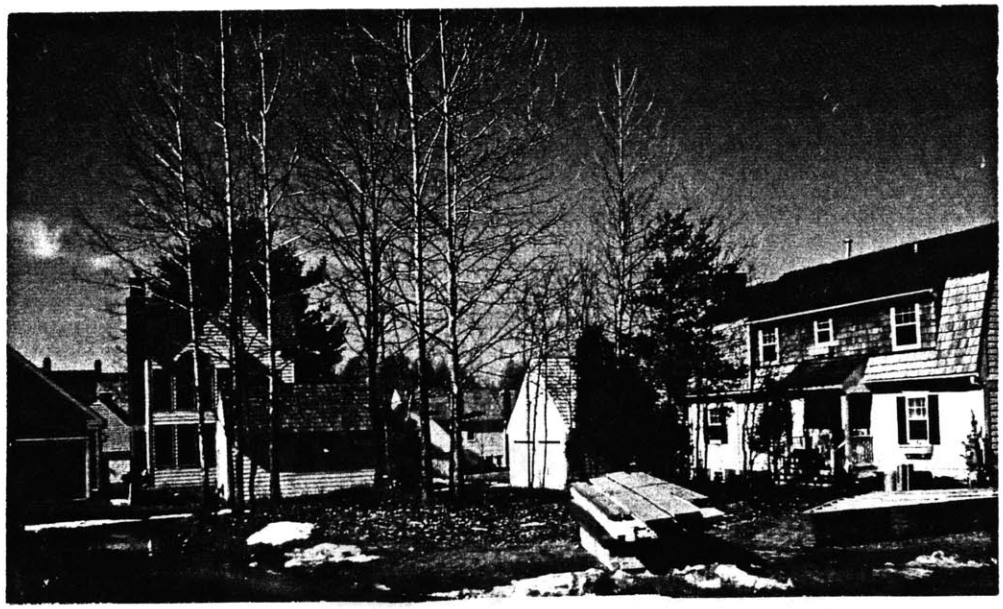
Above: Fig. 59 Where a pathway ought to go, from one open space to another: note sign. Pathway complete with air conditioner.

Right: Fig. 60 Open space, but not a place.

- Small open spaces are configured as left over space, usually do not create the figural quality desired. Open space seems designed for viewing, not inhabiting.







Above: Fig. 61 Diagram of "shared open space" in the middle of a block. Space is wood lot, spatially claimed by front entry of house in middle, and surrounded by road and garages.

Top: Fig. 62 Photo of space

Bottom: Fig. 63 Open space for neighboring house: a bench behind the garage, next to the utilities.

- Anachronistically relies on organization of houses from time of servants. Houses represent this, with formal front and service mews, and back and sideyards bristling with air conditioners and water meters. The garage apartment puts tenant in physical position of servant; the secondary space rarely has any outdoor privacy of its own (and has difficult access for an elderly in-law).

- Back-door service mews for cars, with house fronts on a formalized street, can only work where walking will truly be the dominant form of transport. At Kentlands, family will almost always arrive by car, through a very private, back-door experience that is now even more removed from the civic realm of the street.

- DPZ acknowledges this is one of their most troublesome projects. However, this underlines their basic problem: by creating a development that stresses the image of the small town (but without actually creating the town itself), developers are likely to copy the mistakes (the poorly understood and contradictory spatial aspects) along with the well-understood imageable aspects.

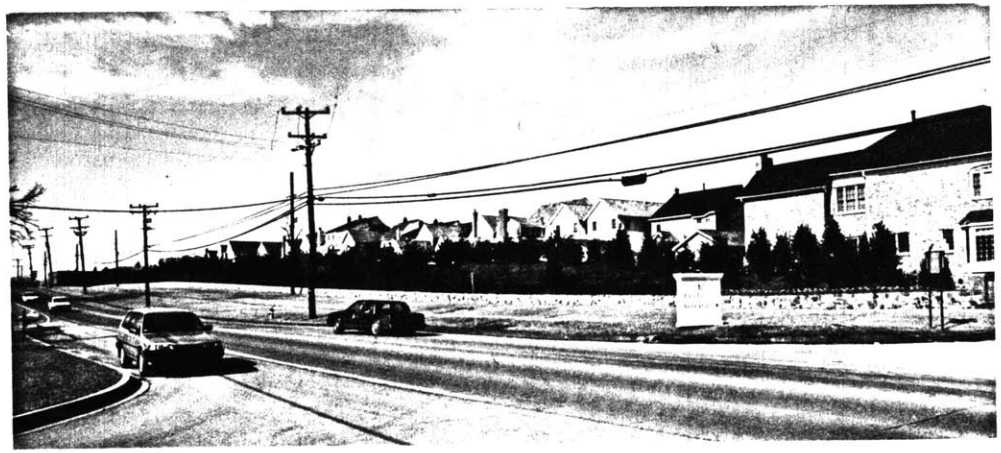


Fig. 64 View of Kentlands from collector road. Buffer from highway made by berm, garages.

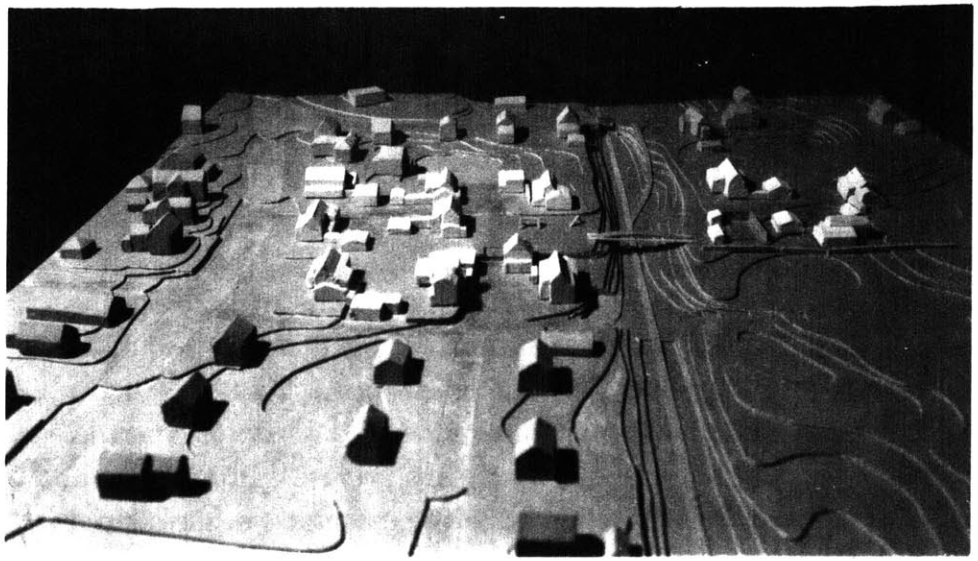
Fig. 65 Site plan, showing shared pathways and roadways.

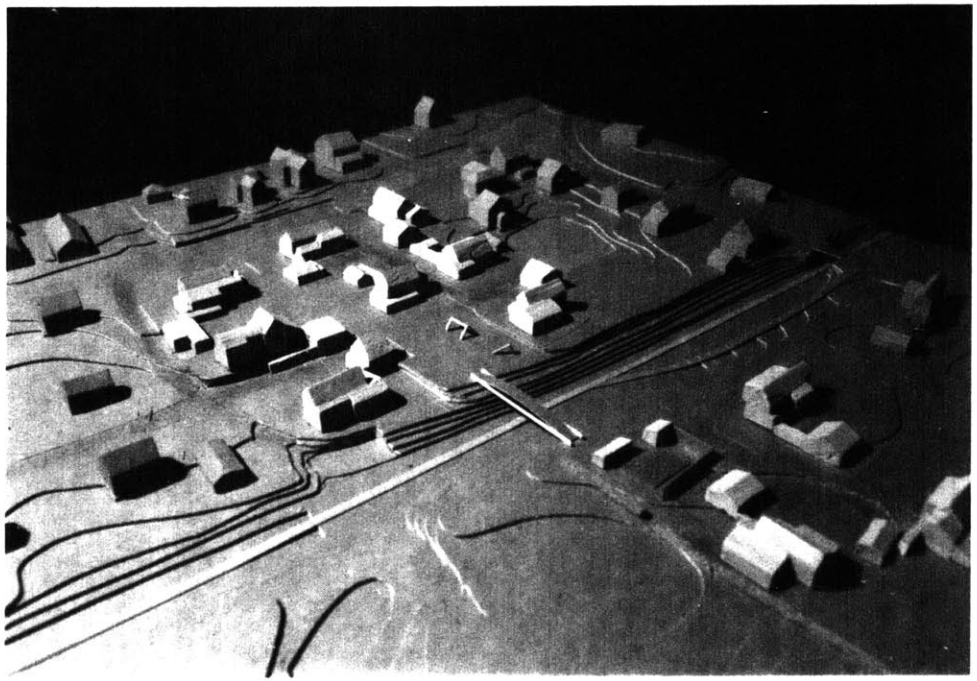
Chapter 6:
The Settlement Transformed

In building the site-to-individual house relationship, the structure of the houses and their relationship to access and privacy is indelibly linked to the organization of public and semi-public interactions. As discussed in Chapter 4, my proposed house form creates thresholds of privacy at the intimate levels of the household. Each house has private, semi-private and public zones; this sensibility was repeated in the treatment of the shared spaces.

Civic Presence

Shared space in the commonly owned territory was created at three scales: regional, local, and neighboring.





Figs. 66 & 67 Models of site, with project. Note carved-out way station, pedestrian bridge

Regional presence:

By developing the bikeway crossing, I intensified an already existing pattern. The path in the open space north of the bikeway already existed; by extending it south through my development I created a connection from the open space to Massachusetts Ave. To make the junction of the path and bikeway more interesting and inviting - to make it a destination in its own right, and thus more of a civic presence - I carved a space on the south side of the junction to be a bike path way station with a drinking fountain, shade tree, and benches. The nearby pedestrian bridge linking the two sides of the site adds to the perception of community connection at this crossing.

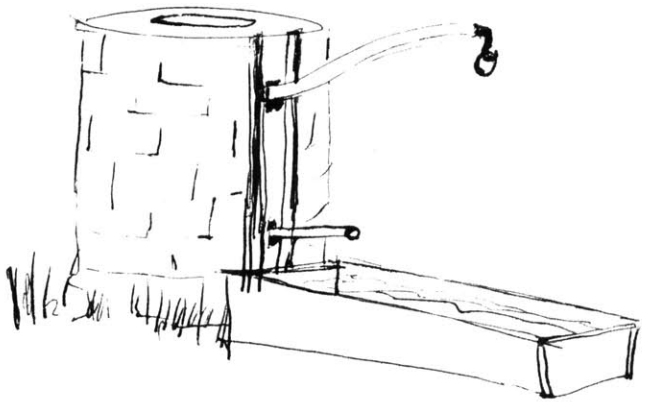
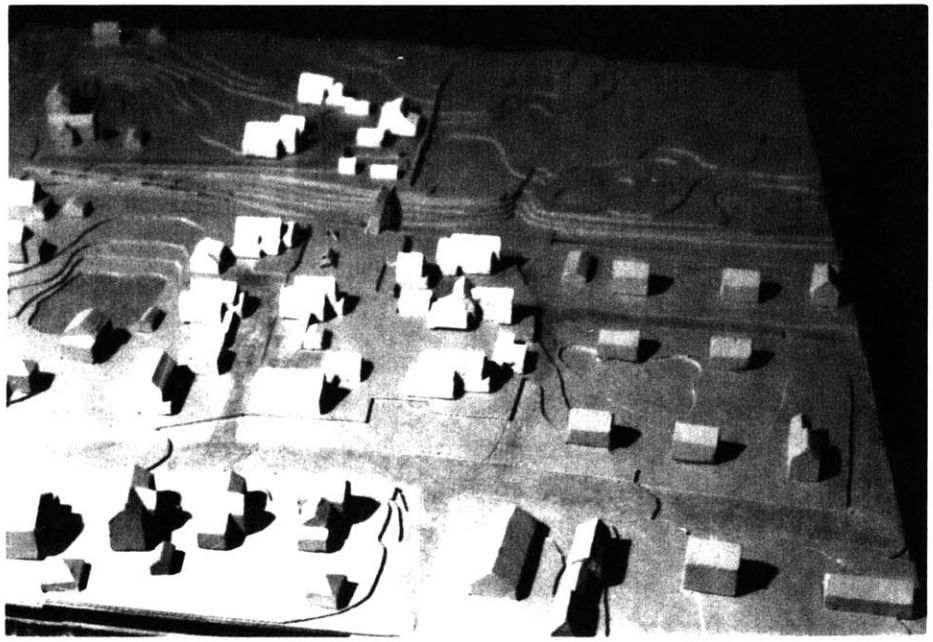
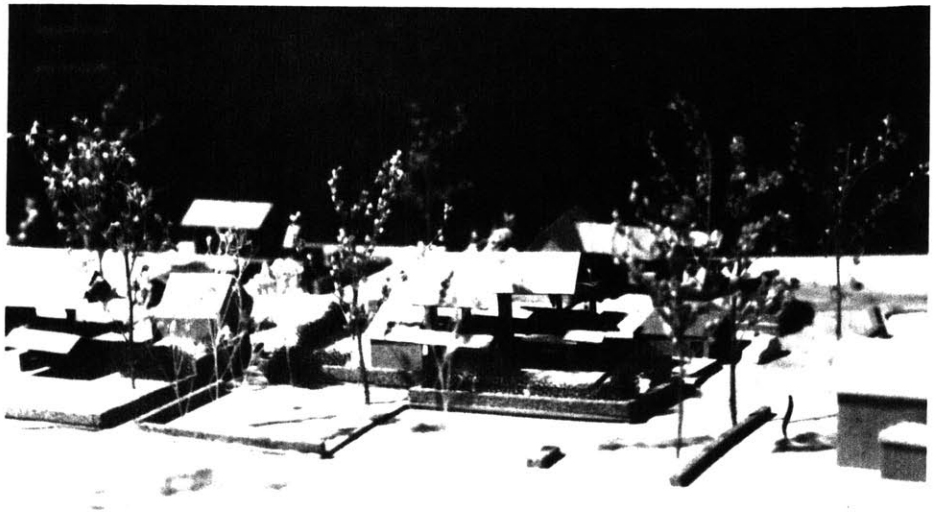


Fig. 68 Swiss town fountain, perhaps model for bikeway fountain





Local presence:

The access path to the bikeway from Massachusetts Ave. extends the line of a local street (Locust Ave., located just across Mass. Ave. from the site) down to the bikeway. At the intersection of this line and Mass. Ave. I designed a small "vest-pocket" park, to be available to the public along Mass. Ave. The cross-walk, traffic light and bus stop already present are part of the experience of civic life at a small scale in this public place. To foster appeal and connection I added a seat for waiting for the bus, and trees to give shade and buffer the noise of Mass. Ave.

Above: Fig. 69 View of site along Massachusetts Ave., vest-pocket park to right, adjacent to path to bikeway.

Below: Fig. 70 View of Mass. Ave. park

The playground, while not advertising its presence, is part of the semi-public pathway system, and is intended for use by families beyond this grouping. Houses adjacent to the playground have privacy zones away from it, but still have visual connection.

The pool requires more supervision, but could be available to the larger community through extended membership. Its location across the foot-bridge from the main housing group helps build the connection between the housing groups on either side of the bikeway.

Implied and explicit extension of pathways from this grouping to the abutting houses also builds potential for neighboring. The space between the settlement and the abuttors are shaped as habitable, and potentially shared, places of their own.

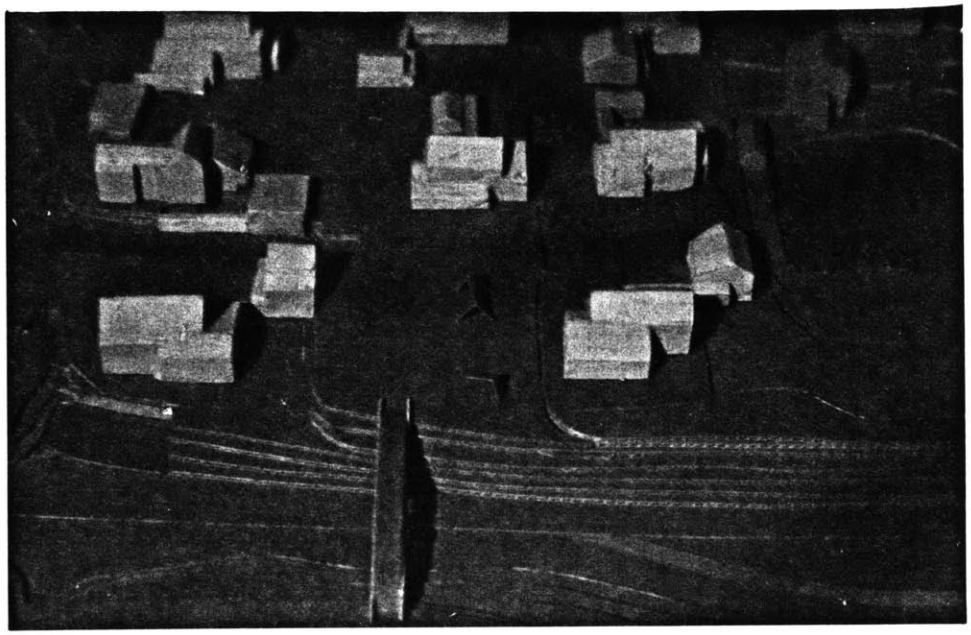
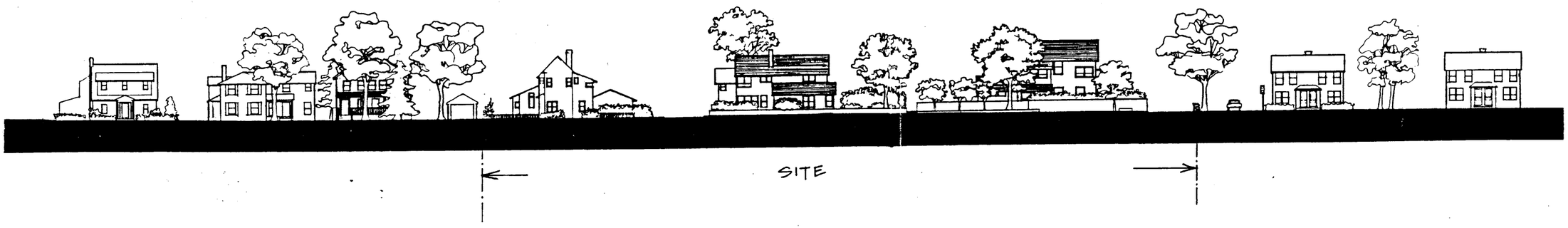


Fig. 71 Playground area, as part of linking pathway across bridge, between pool and other shared areas.

The houses neighboring the site are of a mix of types, but are generally clapboard colonials, a fairly closed form, while the houses I designed are more open and extending. The proposed grouping has an identity of common formal language; to respect the language of formal continuity of other houses along Mass. Ave., massing is similar, roof forms are relatively simple, and fenestration is restrained.

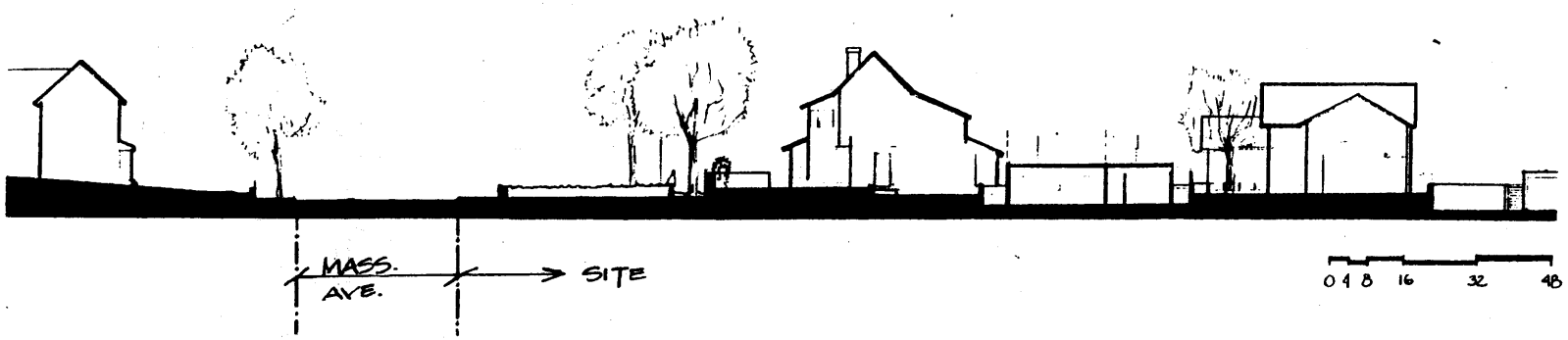
Fig. 72 Street elevation Fold-out

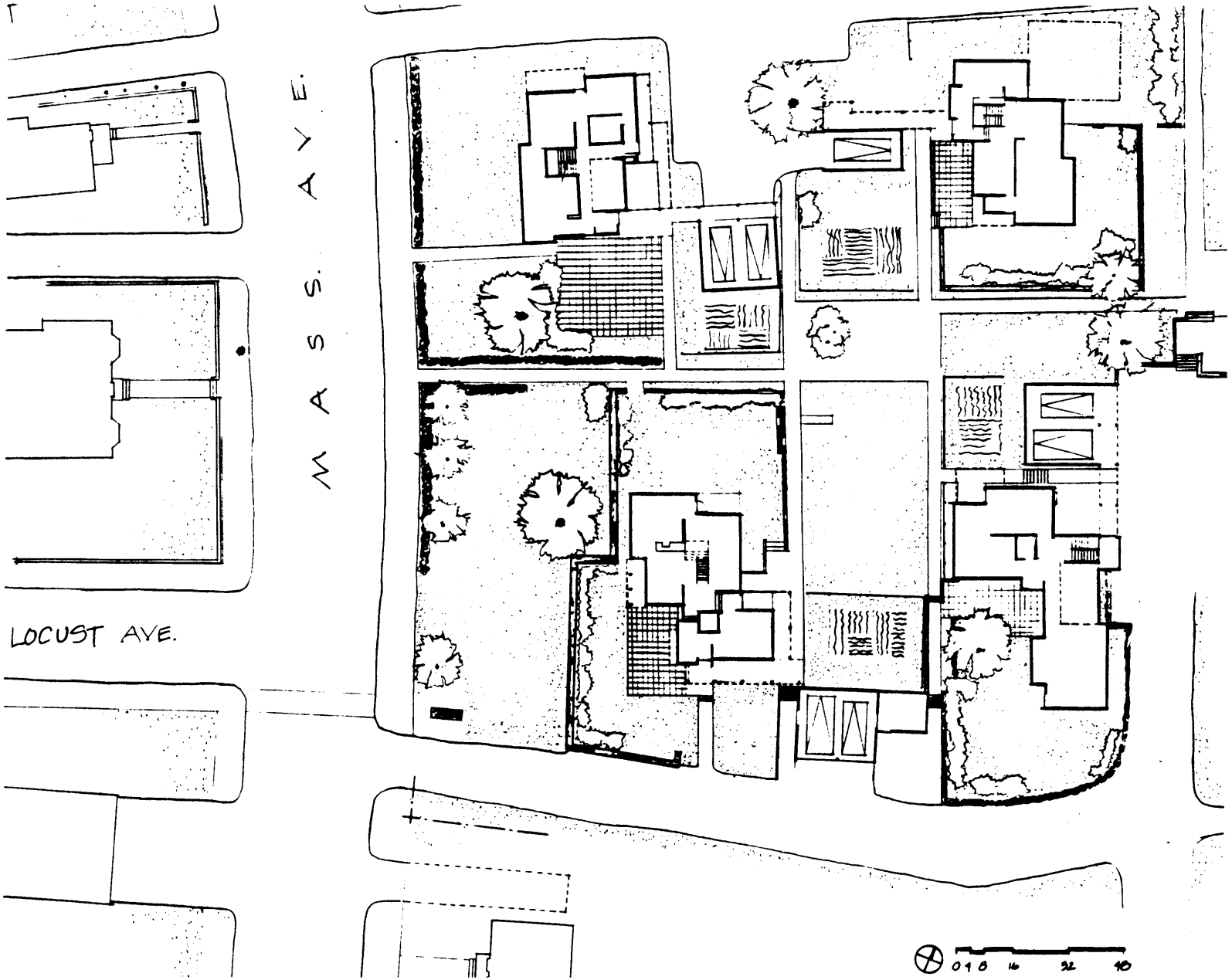

SITE

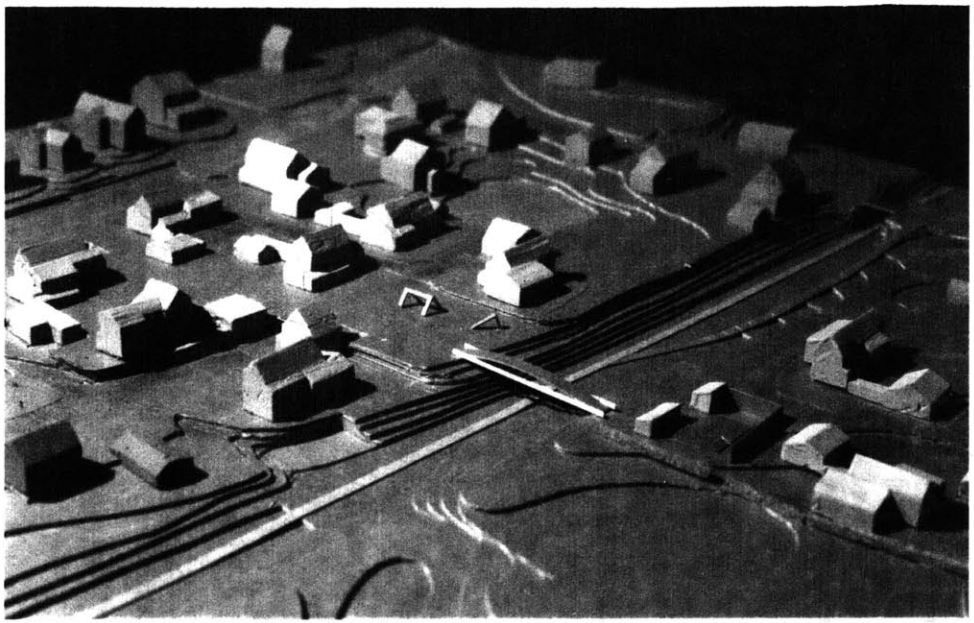
Neighboring presence

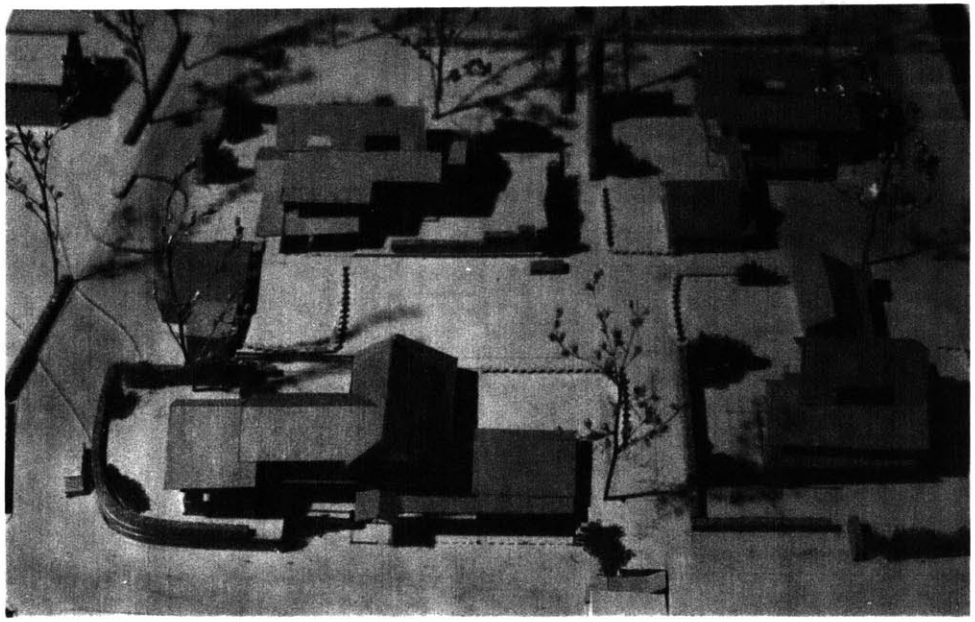
The variety of shared spaces provide numerous places for interaction, with three specifically more focused places: the pool, the playground area, and the courtyard. Gardens and pathways support these places, as do the roadways, with shared driveway/garage/entry access zones. Interaction among all ages of inhabitants can happen; opportunities are not limited to specific uses.

Fig. 73 View of shared courtyard, at intimate scale of sharing

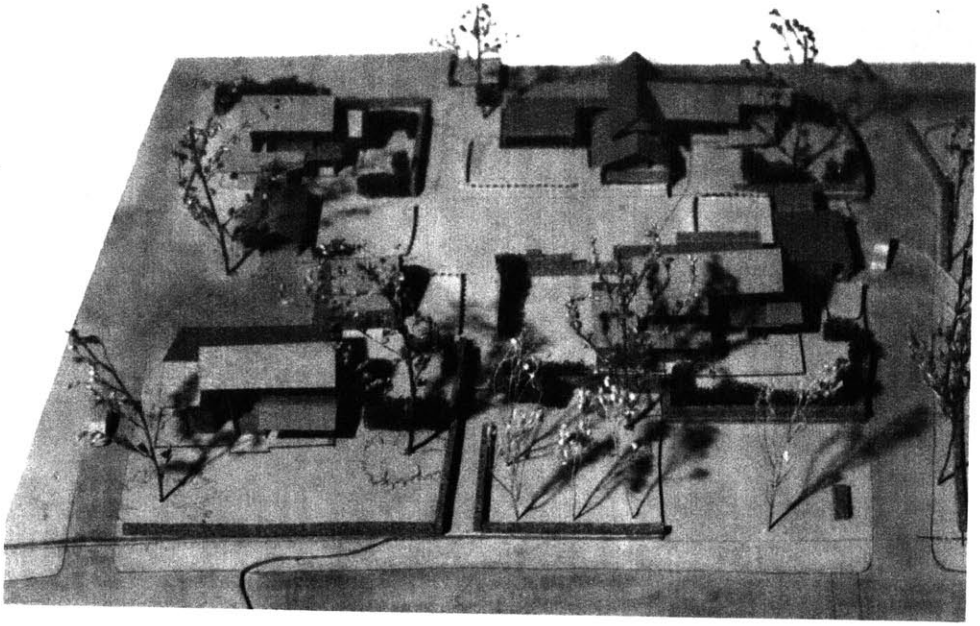

MASS.
AVE.
SITE
0 4 8 16 32 48


MASS. AVE.
LOCUST AVE.





Places



Pathways

Fig.74 Shared spaces: Neighboring scale and community scale

Conclusion

To make the kinds of shared space that I have described, I deliberately set out to create a very permeable environment. Each house stands on its own land, with independent outdoor private areas and semi-private areas, and in formal terms, each house is an island. Typical suburban houses are also like islands, but where their edges touch, there is usually a barrier. Here, there is some kind of figural space: a pathway or a roadway.

The shared spaces, commonly owned, are carefully set up to equalize the relationship between car and pedestrian. Spaces for cars, and for interaction between people using cars, need to be as carefully configured as places for pedestrians alone. Without explicitly celebrating the car, it is possible to incorporate it as something more than a mere service vehicle, to be shut away in back.

The siting of this settlement was a very large part of this project, reflecting the concern I had for creating something that had some reason for its place in the community. My concerns about regional scale, and the kinds of public space that relate to this scale, were adequately addressed by choosing to work along the bikeway. The project ended up creating two specific public purposes, at different scales: it reversed the residential formulation that turned away from the bikeway, and it established a

system for developing site potential at other identified locations into something more: a real civic presence.

In addition, by working at the small scale, the scale at which people really live and develop relationships, I was able to bring the whole notion of civic presence closer to home. The system of permeability probably can be expanded to deal with larger programs, as long as the basic sizes are respected and created.

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